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No. VII. of Vol. II., 1920. **No. 5059. Vol. CXCIX.** LONDON, SATURDAY, AUGUST 14, 1920. Founded 1823. Registered as a Newspaper. Published Weekly. **Pp. 104—Price 1s.** Annual Subscription Inland £2 2s. Abroad £2 10s.

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Delivered before the Royal College of Physicians of London, June, 1920,

BY ARTHUR F. HURST, M.A., M.D. OXON., F.R.C.P.,
PHYSICIAN AND NEUROLOGIST TO GUY'S HOSPITAL.

LECTURE IV.*—SEEING, LOOKING, AND HYSTERICAL BLINDNESS.

MR. PRESIDENT AND GENTLEMEN,—In the last lecture the psychology of hearing was discussed. It was shown how in order to hear it was necessary to listen, and that the process of listening involved some change at each synapsis in the auditory tract from the cochlea to the cerebral cortex, as a result of which resistance to auditory impulses was diminished.

In order to see it is necessary to look. Looking involves a process in the visual tracts strictly comparable to what occurs in the auditory tracts in listening. But in addition to this the action of a number of muscles is called into play, comparable to what I described in regard to listening, although the movements involved are more important and require much more delicate adjustment. Two distinct elements thus require consideration—the afferent, involving the visual tracts, and the efferent, involving certain motor tracts.

(*a*) *The Afferent Element.*

Inattention is rarely so profound in normal individuals that no visual impulses reach the brain at all, although complete absence of hearing not infrequently results from extreme inattention. It is common enough for visual impulses to be so blurred that a man, wrapped up in his own thoughts, does not see the approach of a friend, but he would always avoid obstacles if he were walking, and he would be aroused by the sudden approach of an object to his eyes; the latter would also give rise to the flinch reflex.

In the condition of stupor, which was not uncommon in soldiers who had been exposed to exceptionally terrifying ordeals, the mind appeared to be so completely absorbed with thoughts which had no connexion with the patient's present surroundings that he did not respond to any impulses from the outside world. He appeared to be blind, deaf, and anæsthetic; he gave no flinch (visual motor) or jump (auditory motor) reflex; cutaneous (tactile motor) reflexes were often, though not invariably, abolished; and the pupil contracted sluggishly or not at all on exposure to light. In spite of this he could feed himself if food was put in front of him, he did not stumble against obstructions if he were taken for a walk, and he occasionally showed a slight response to certain loud sounds, so that vision and hearing were clearly still possible, but it was difficult or impossible to induce the patient to look or listen even for a few seconds at a time. Exactly the same thing occurs in somnambulism. The doctor, seeing Lady Macbeth walking in her sleep, exclaimed, "You see, her eyes are open," and the gentleman replies, "Ay, but their sense is shut."

In the lecture on "Hearing, Listening, and Hysterical Deafness" it was explained how the idea of being unable to hear, suggested by temporary organic deafness, might give rise to a continued absence of listening and consequent deafness after the organic cause had disappeared. In the same way any condition which has led to complete though temporary blindness may suggest to the individual that he has lost his sight for ever; this is particularly likely to be the case if the temporary blindness is produced suddenly under terrifying conditions, as, for example, by the explosion of a powerful shell in the immediate neighbourhood. The slower onset of the temporary blindness in gassing, although the surrounding conditions might be equally terrifying, generally resulted in less profound hysterical blindness. When the suggestion that the sight is permanently lost has become thoroughly accepted the individual will cease to look. The visual tract is no longer prepared for sight by attention, and visual impulses consequently cease to pass up to the brain. In the act of looking the resistance at each cell-station in the tract is diminished by some such process as a throwing out of dendrites or an alteration in the electro-chemical condition of the synapses. Consequently visual impulses not only give rise to no visual perception, but the flinch reflex and in the most severe cases even the pupil reflex to light disappear, as the resistance to the impulse even at the lowest synapses is too great to be overcome. More commonly the impulses produced by a very bright light can still break through the resistance, so that a sluggish reflex to light is obtainable, but the flinch reflex is still completely abolished.

When, as a result of psychotherapy, the patient realises that he can really see if he only chooses to look, he once more throws out the dendrites (or otherwise reduces the resistance) in the visual path and vision returns, the pupil and flinch reflexes becoming normal again at the same moment.

Injury or disease of the visual centre in the occipital cortex is the only organic condition leading to blindness in which the lower visual centres are unaffected. It might be expected that the flinch reflex would remain unaltered, corresponding with the persistence of the auditory motor reflex in decerebrate animals. This is not, however, the case, as Gordon Holmes,[1] in his unique experience of head injuries during the war, found that the flinch reflex was always lost in the blind fields of vision. This corresponds with the experimental observations of Sherrington, who found that the reflex was always abolished in decerebrate animals, even when the anterior corpora quadrigemina remained intact, although the auditory motor jump reflex remained unaffected. It is not at first clear why the latter should persist while the flinch reflex should disappear. But Sherrington points out that it is not every sound which can produce the auditory motor reflex in cerebrate animals, but that shrill peculiar sounds are the provocative ones, mere loudness appearing to be of no importance. As the effective sounds are neither injurious nor painful, they must have some other meaning, possibly connected with the sexual life of the animal. On the other hand, the retinal stimulus which gives rise to the flinch reflex may perhaps require remembered experience in order to be effective. Thus the reaction of blinking is anticipatory, the response being to threatened injury and not to actual injury. As memory and anticipation depend upon higher centres than the corpora quadrigemina and geniçulata, the reflexes are abolished, both in animals and man, when the cortical centres are thrown out of action. The flinch reflex is thus a true visual reflex, being dependent, as von Monakow was the first to show, on visual perceptions.

It is clear from what has been said that in the absence of abnormality in the eyes there is no means of determining with certainty whether absolute blindness in the whole fields or in homonymous areas is organic or hysterical, as the flinch reflex is lost in both.

(*b*) *The Efferent Element.*

With the afferent element set in readiness visual impulses reach the occipital lobes, but nothing is seen clearly until the eyes are opened; the extrinsic muscles work in thorough coördination, so that the object to be looked at is brought into the centre of the field of vision of both eyes, and the ciliary muscles contract just sufficiently to bring it into correct focus. All these motor processes may be impaired as a result of suggestion, either alone or in addition to the afferent element already described. How this occurs can best be understood by a consideration of the hysterical disorders of vision which follow gassing.

Exposure to mustard-gas is followed in a few hours by pain in the eyes, which is increased by exposure to light. Conjunctivitis, blepharitis, and in rare cases keratitis, quickly develop. As long as pain and photophobia are present, the swollen lids remain closed. This is partly due to inactivity of the levator palpebræ superioris muscles, for the patient makes no effort to open his eyes, knowing that if he were to do so the exposure to light would cause pain. It is partly due to a protective reflex, which results in over-action of the orbicularis palpebrarum muscles, particularly if the patient does try to open his eyes. The object of this is to protect the eyes from being irritated by light; it is accompanied by reflex lacrymation, as a result of which irritating material is washed away. The inflammation gradually subsides, the reflex blepharospasm and lacrymation disappearing pari passu. At the same time the majority of patients realise that they can now open their eyes without hurting them, and in most cases they do so.

In individuals, however, who have become abnormally suggestible as a result of the stress and strain of active service, and in others who for any reason are particularly anxious about the condition of their eyes, the normal results of the conjunctivitis become perpetuated by auto-suggestion, to which may sometimes be added the hetero-suggestion

* Lectures I., II., and III. were published in THE LANCET of July 24th (p. 169) and 31st (p. 235), and August 7th (p. 285), respectively.

caused by injudicious treatment, such as the prolonged use of eye-shades and dark glasses, which give rise to an exaggerated fear in the patient's mind of the consequences of having been gassed. The voluntary inactivity of the levator palpebræ superioris becomes perpetuated as an involuntary inactivity, which may amount to actual paralysis, the condition being now one of hysterical ptosis. In rare cases the hysterical paralysis of the levator palpebræ may spread, hysterical paralysis of the whole of the face resulting (Case 8). A patient who finds himself unable to open his eyes by contracting his levator palpebræ muscles often attempts to compensate for this by contracting his frontalis muscles, and if the attempt meets with sufficient success to enable him to see through the chinks between his eyelids, he does this more or less constantly. The reflex blepharospasm is perpetuated as hysterical blepharospasm, which is generally most obvious when the patient attempts to open his eyes voluntarily, the eyes becoming more tightly closed than ever. The paralysis of the levator is thus accompanied by spasm of the orbicularis, just as hysterical paralysis of one group of muscles in a limb is often accompanied by hysterical spasm of the opposing group of muscles. The spasm often involves the neighbouring muscles or even all the muscles supplied by the facial nerve. Any attempt to pull the eyes open meets with great resistance, and a peculiar thrill is often felt owing to the irregular contraction of the orbicularis muscle. In some cases after it has become possible to open the eyes voluntarily the ptosis and blepharospasm manifest themselves intermittently in the form of attacks of blinking, especially on exposure to a bright light. Although hysterical ptosis and hysterical blepharospasm are generally present together, either may be present alone, and the proportion of one to the other may be different in the two eyes, as in Case 8.

In total blindness due to severe bilateral optic atrophy the eyes are kept open during the day and look straight forward, but they close during sleep. An uneducated man, however, if told to pretend that he is blind, generally closes his eyes, and when they are forced open or he is told to open them he at once turns them upwards in order to keep the pupils covered by the lids. Conversely, if he is for any reason unable to open his eyes he will very likely imagine that he is blind. Hysterical ptosis and blepharospasm are thus often accompanied by hysterical amblyopia, the patient having so convinced himself that he cannot see that he makes no attempt to look when his eyes are at last opened. When the lids are forced apart the eyes generally turn involuntarily upwards to protect them from the light. The pupils are consequently still hidden and vision is impossible. Even when the lids are sufficiently separated to expose the pupils the patient can only see indistinctly, and in rare cases he cannot see at all. The indistinct vision is due to a combination of hysterical paresis and spasm of accommodation. A man with normal vision relaxes his ciliary muscles to look at the distance and contracts them to look at a near object. A man who is convinced that he cannot see fails to regulate the activity of his ciliary muscles correctly when he opens his eyes. Instead of relaxing them when he wishes to look at a distant object he throws them into spasm, and he also fails to see near objects clearly, as he does not contract them to the correct extent. He has, in fact, lost control over accommodation, and, believing himself blind, looks at nothing.

The external ocular muscles may remain inactive as hysterical external ophthalmoplegia—a very rare condition, which I have, however, seen occasionally—or, much more frequently, certain muscles may be thrown into spasm in the attempt to bring them into action after long disuse, and hysterical strabismus results. Thus hysterical spasm of convergence is often seen when the eyelids are forced open, in addition to the contraction of the superior recti, which tends to keep the pupils hidden under the upper lids. In consequence of this abnormality of accommodation and convergence the patient sees nothing clearly, but he is not completely blind. Complete hysterical blindness, which is rare in cases of this kind, is due to the patient being so convinced that he cannot see that he does not use his visual centres at all; the psychology of this condition has already been described.

ILLUSTRATIVE CASES.

The following cases of hysterical disorders of vision have been selected from the large number I have seen as illustrating what I have already said concerning their pathogenesis. They also throw light on several questions connected with the ocular movements and reflexes, which have been the subject of controversy in the past. For the description of the majority of cases I am indebted to the medical officers who worked with me at the Seale Hayne Hospital, especially Captain A. Wilson Gill, Captain C. H. Ripman and Captain R. G. Gordon.

In the first case the blindness was the most nearly absolute I have seen result from hysteria. It is of exceptional interest, as it is also the only case in which the reflex contraction of the pupils to light was abolished. So far as I am aware no similar case has hitherto been described.

CASE 1. *Total blindness with loss of pupil reflexes following shell concussion; hysterical nature proved by rapid cure by psychotherapy after persisting for four years.*—Pnr., aged 41, went to France in September, 1914. After six weeks' fighting he was stunned as the result of the explosion of a shell in his immediate vicinity. In the evening he noticed he could not see clearly and attributed this to the shock of the explosion. He at once feared he would lose his sight; his eyelids began to droop and he had difficulty in focussing near objects. He was sent to England where the use of eye drops and dark glasses confirmed his fears, and in a short time he became totally blind. Early in 1915 he was discharged as permanently unfit, receiving a full pension for total blindness. He was examined every six months after this, but no treatment was given. In November, 1918, he was seen by Mr. J. R. Rolston, of Plymouth, who recognised the condition as hysterical and advised his transfer to Seale Hayne Hospital, where he was admitted on Nov. 13th, 1918. He presented the picture of the typical blind beggar of the street. Unshaven, unkempt, and dirty, and wearing a pair of dark glasses, he came supported by his wife, while in his hand he carried a thick stick to help him guide himself. Whilst wearing the glasses he kept his eyes open, but could see nothing; when they were removed he was unable to raise the lids owing to severe blepharospasm, except in a darkened room.

Treatment was commenced the same evening, and in a short time the blepharospasm was overcome and the patient opened his eyes, but he was still totally blind. The pupils were then found to be widely dilated, with no trace of reaction to light. The flinch reflex was completely absent in both eyes. Ophthalmoscopic examination showed nothing abnormal, and a definite diagnosis of hysterical blindness was made. Explanation as to the nature of his condition and encouragement to use his eyes rapidly led to partial restoration of vision, but at the end of two hours he still stumbled over objects placed in his path. After a rest of an hour treatment was continued and further slight improvement occurred. In attempting to focus his eyes he made strong contractions of the muscles of the neck similar to those seen in the spastic variety of hysterical aphonia when the patient attempts to speak.

The next morning he was taken out of doors, and distant objects were soon recognised. An endeavour was then made to teach him to focus his eyes on nearer objects, and by the evening he could read 6/24 at 20 feet. The excessive contractions of the neck muscles continued, however, but by encouraging him to relax they gradually disappeared and vision steadily improved. He was still inclined to stumble over objects placed in his path, but this was merely due to inattention. On Nov. 25th he could read with each eye in turn 6/12 at 20 feet and could spell words printed in small type, but as he was almost completely illiterate he could not pronounce them. The flinch reflex and the normal pupillary reactions to light had returned the first evening.

The patient was also completely deaf in the left ear on admission; he was given instruction in listening, and at the end of a week he could hear normally. When seen four months later, in February, 1919, he was at work as a watchmaker and gramophone repairer.

Whilst a man is still dazed as a result of being blown up by a high-explosive shell he pays no attention to any external stimuli, and may be regarded as psychically blind, deaf, and anæsthetic. His sight, hearing, and cutaneous sensibility generally return as he regains consciousness, but if there is anything which draws his attention to his eyes the blindness may persist as a result of auto-suggestion. The following is one of seven cases seen with Major A. W. Ormond,[4] in which sand was blown into the men's eyes from the sand-bags of the parapet on which the shell exploded. The irritation it caused drew their attention to their eyes and resulted in blepharospasm and amblyopia, which persisted long after every sign of conjunctivitis had disappeared. These early cases were the only ones in which hypnotism was used.

CASE 2. *Hysterical blindness following exposure to a shell explosion cured by hypnotism.*—The patient, aged 22, was looking over a parapet at Gallipoli on July 18th, 1915, when a shell struck the sand-bags in front of him. He remembers the sand being thrown up into his eyes, after which he fell back and knocked his head. He was unconscious for 24 hours. His first impression on regaining consciousness was extreme irritation in his eyes. He tried to open them, but found he could not do so. His mind thus became concentrated on his eyes, and owing to the confusion which is common among the uneducated between inability to open the eyes and blindness, he became absorbed with the idea that he was blind and that he would never be able to open his eyes or see again. The impairment of other functions, which was doubtless present at first, remained unnoticed in this greater trouble, except for some loss of hearing, which quickly disappeared. The condition of his eyes had not altered when I first saw him on Sept. 17th, 1915. He was quite blind, and there was a constant flicker of his eyelids, which were kept almost closed. On forcibly opening his eyes they were found to be turned so far upwards that it was difficult to see even the iris. A few fragments of sand were still embedded in the conjunctiva but not in the cornea; there was no inflammation. The inability to open the eyes and the idea of blindness were thus perpetuated by auto-suggestion, and persisted long after the inflammation caused by the dust had disappeared.

The patient was easily hypnotised, and whilst asleep he was told that he would be able to see when he woke up. The moment he awoke the suggestion was repeated very forcibly, and his eyes were held open. He cried out that he could see, tears ran down his cheeks, and he fell on his knees in gratitude, as he had thought that he was permanently blind, and believed that his sight had been restored by a miracle. When seen again on Sept. 20th the external appearance of his eyes was normal, and he said that he was able to see as well as he had ever done. There was some opacity of the vitreous of the left eye, which was doubtless a result of injury at the time of the explosion. There had been no return of symptoms, and the patient was well in every way when I last saw him on Sept. 30th. His vision was 6/6 in the right eye and 6/36 in the left.

In the next case the blindness was so typical of what would be expected to follow a wound in the occipital region that no doubt was felt as to its organic nature. The sequel, however, proved that it was due to the perpetuation by auto-suggestion of the organic blindness, which had been caused by concussion rather than destruction of the visual centres in the occipital cortex. The patient realising that he was blind in certain directions ceased to look in these directions: the dendrites were perhaps retracted at the synapses in the affected tracts and the flinch reflex consequently disappeared. When at last the œdema and other changes produced by the initial concussion of the occipital cortex had disappeared and vision was again possible, the patient had become so accustomed not to look in the blind fields that no spontaneous improvement occurred.

CASE 3. *Hysterical blindness in three quadrants of the visual field, following organic blindness caused by a wound in the occipital region and associated with hysterical deafness.*—Pte. W., aged 22, was wounded over the lower part of the right occipital region near the middle line on June 7th, 1917. He was unconscious for five days and was then trephined. On admission to Netley, on July 6th, 1917, he was completely deaf in both ears, but as the vestibular reactions on rotation were normal the deafness was regarded as hysterical. It was noticed that he had difficulty in seeing and that he held anything he wished to read low down on the right side, although he volunteered no complaint about this, and only spoke about his deafness. On further examination it was found that he was totally blind except in the right lower quadrant of the field of vision of both eyes, the blindness being what might be expected to result from the wound which had probably involved the whole of the visual centre on the right side, but only the lower part of the calcarine cortex on the left. An attempt was made at the end of August to cure the hysterical deafness by a pseudo-operation, the patient being told that a cut behind his ear would certainly restore his hearing. Nothing was said to him about his blindness, which was regarded as organic. The "operation" resulted in immediate improvement in his hearing, as it at once became possible to carry on a conversation with him by shouting. Quite unexpectedly it was found that his vision was now absolutely normal, the blindness having been cured by the suggestive effect of the "operation."

I shall now describe the different varieties of hysterical visual disturbances, which were such a frequent result of gassing. The first case is an example of the common form in which both eyes were equally affected; the patient was unable to open his eyes owing to a combination of hysterical ptosis and blepharospasm, and when the eyes were opened he only saw very indistinctly.

CASE 4.—*Hysterical blepharospasm, ptosis, and amblyopia of four months' duration.*—Gnr. K., aged 33, had been in France seven months, and for most of the time was on duty behind the firing line, because his nerves were not equal to life at the front. In December, 1917, he was blown up, and was then very shaky and frightened. He was gassed on April 9th, 1918. Next morning he was unable to open his eyes. When admitted to Seale Hayne Hospital, under Captain C. H. Ripman, in August, 1918, he could only see indistinctly through the narrow slit which he could produce by a great effort between his eyelids by strong contraction of his frontalis muscles, and he used his hands to steer himself. A thrill caused by contraction of the orbicularis muscles was distinctly felt in the lids when an attempt was made to force them open.

The orbicularis spasm relaxed and he recovered the power of his levator palpebræ muscles in five minutes as a result of persuasion, and he was then quickly trained to see perfectly well. For a time he was inclined to blink and to let the upper eyelids droop a little: this was due to persistence of slight ptosis, caused by hysterical paresis of the levator palpebræ muscles, and not to spasm of the orbicularis, and in order to counteract the ptosis he continued to wrinkle his forehead. He made a slow but steady recovery from this habit, and was discharged from hospital completely cured a few weeks later.

In Cases 5 and 6 one eye was more severely affected than the other. There must always be some explanation for an asymmetrical condition resulting from a cause which would be expected to act symmetrically. In hysteria the explanation is always a psychical one. In the cases in which visual symptoms were more marked in one eye than the other after gassing it was found that the patient had for some reason been anxious about the vision of the former, which may, in fact, have been less acute than the other on account of an error of refraction.

CASE 5. *Hysterical ptosis with unilateral blepharospasm and amblyopia cured in an hour.*—Cpl. B. was gassed in France in June, 1918. This resulted in severe conjunctivitis. As he could not open his eyes he was afraid he might go blind. He was particularly anxious about his left eye, as it had always been weak and subject to inflammation and styes. In order to protect the eyes when painful he had kept the lids closed, and when the inflammation had subsided he found he was unable to open them. If the left lid was raised he experienced great discomfort and everything seemed blurred. The right eye was not painful and he could see clearly with it, but in order to do so he had to raise the lid by contracting the frontalis muscle, as he could not use his levator palpebræ. He was admitted to Seale Hayne Hospital under Captain R. G. Gordon on Oct. 23rd, and an hour's persuasion was sufficient to induce him to use the proper muscles and to relax the spasm of the right frontalis, but the spasm tended to relapse for a few days unless he paid special attention to it. The vision of the left eye quickly returned with re-education of accommodation.

Cases of Ptosis.

The next case is of interest in connexion with the part taken by the frontalis muscle in ptosis. It is generally taught that hysterical ptosis can be distinguished from ptosis due to organic disease by the fact that the latter is accompanied by compensatory over-action of the frontalis muscle in the effort to keep the eye open, whereas this never occurs in the former condition. Thus Purves Stewart[5] and Oppenheim[6] make the distinction without mentioning the possibility of exceptions. In the following case, however (and also in Cases 5, 7, and 8), there was as marked compensatory overaction of the frontalis as occurs in any case of organic paralysis. The complete recovery after a few minutes' treatment by psychotherapy, although the ptosis had persisted without alteration for a considerable time, confirmed the diagnosis of hysteria. It is not surprising that the belief that compensatory action of the frontalis only occurs in organic ptosis should prove erroneous, as it would seem very natural that a man who was unable to open his eyes by contracting the levator palpebræ superioris should attempt to do so with his frontalis muscle, and it is obvious that in organic ptosis the overaction of the frontalis is purely voluntary. As the exact manner in which hysterical ptosis manifests itself depends simply on the patient's own conception of a drooping eyelid, it would be astonishing if the frontalis did not always contract, and in all the cases of pure hysterical ptosis which I have examined the frontalis did, in fact, contract. It is clear, therefore, that the supposed distinction between organic and hysterical ptosis, which has been copied from one book to another, cannot be regarded as of any value in diagnosis.

CASE 6. *Hysterical blepharospasm, ptosis associated with overaction of the frontalis, and amblyopia following gassing and cured by psychotherapy.*—Corporal H., aged 22, was gassed on May 20th, 1918. He was admitted to hospital the same day with conjunctivitis, his eyes being tightly closed. Thirteen days later he was able to open his left eye, but the right one still remained closed, and he thought he was blind in that eye. Early in June he was transferred to a military hospital in England, where he remained for a fortnight. He was then sent to a V.A.D. hospital and treated with electricity and daily eye-baths with no improvement. He was admitted to Seal Hayne Hospital on Oct. 22nd, under Captain S. H. Wilkinson, with the right eye tightly closed owing to unopposed spasm of the orbicularis, but the left eye was kept partially open as a result of continuous contraction of the frontalis muscle. Vision was so indistinct that he could only see with difficulty, and he was quite unable to read. No conjunctivitis was present, but at the corner of the right eye there was a scar on the skin about the size of a two-shilling piece; this was caused by a nævus having been burnt off when he was a child. He had always believed that this had impaired the sight of the right eye. After being in France for a few months he noticed that the sight of the right eye was becoming more "blurred," and when he was gassed he was at once terrified that he would be completely blinded in this eye. He was treated by persuasion, and in half an hour the orbicularis spasm of the right side and the ptosis of the left were overcome, and he was then quickly trained to focus his eyes, so that his vision became quite normal except for some myopia of the right eye, which had always been present and was doubtless the real cause of this eye being the weaker one.

In the following case the ptosis which was present on one side spread so as to produce complete facial paralysis, which was remarkable in that the only unparalysed muscle was the frontalis, which attempted to counteract the paralysis of the levator palpebræ superioris. The platysma was also involved contrary to what would be expected from Babinski's teaching, as he regarded paralysis of this muscle in facial paralysis

as a definite sign that the condition is organic. This is not, however, the only case I have seen in which Babinski's platysma sign has proved to be misleading. Whilst the ptosis spread to produce facial paralysis, the blepharospasm of the affected side spread to produce facial spasm.

CASE 7. *Hysterical left facial paralysis and ptosis, right facial spasm, paralysis of right arm and both legs, aphonia, dysarthria, and ambiyopia following gassing.*—Lieut. B., aged 28, was gassed on April 24th, 1918. He remained quite blind and very hoarse for about six days. When sent to England on May 3rd he could see a little and could talk fairly well. On reaching the hospital, however, he could hardly open his eyes and was very breathless. The base of the right lung was dull and crepitations were present; sputum was blood-stained. He improved, but the left side of his face and his right arm and leg became paralysed during the next few days. He gradually lost the power of speech; he could not phonate at all and could only make unintelligible, whispering sounds. He was unable to open his mouth, and could thus only take fluid food. A few days later the left leg became swollen and a tender spot developed over the femoral vein, apparently due to thrombosis; the other leg soon became affected in the same way to a less extent, but rapid improvement occurred, so that the last trace of swelling had disappeared by June 10th.

When I first saw him on June 16th his eyes were closed and there was a constant spasm of the whole of the right side of the face, especially involving the orbicularis palpebrarum and levator anguli oris. The left side of the face, including the platysma, was completely paralysed except for the frontalis, which contracted with excessive vigour in the patient's efforts to overcome the ptosis, which was present on both sides in addition to the spasm on the right side, and this prevented him from seeing unless he held his left eye open. When the upper lid was held open and the right lids pulled apart it was found that there was a marked squint due to spasm of the internal recti. The masseters were tightly contracted, so that he could not open his mouth. Spasm was also present in the left side of the tongue, so that when later he was able to open his mouth and put out his tongue it went to the left. The right arm and leg were completely paralysed, and he was only able to move the left leg with difficulty. With simple persuasion and re-education in breathing he quickly learnt to phonate, and then gradually learnt to articulate clearly. The ptosis of the left eye was overcome by persuasion without difficulty. The spasm of the muscles of the right side of the face slowly improved with massage and stretching the muscles by pulling the eyelids apart and pulling down the upper lip, which was gripped with one finger inside the mouth and the other outside. When at last he was able to open the right eye it was found that he could hardly see with it, but with simple explanation and persuasion the amblyopia disappeared. The severe internal strabismus, which was present when both eyes were open, gradually disappeared as he became accustomed to using his eyes. With some difficulty he was taught to balance himself while standing, after which he quickly learnt to walk. He was treated at intervals from 10 A.M. until 6.30 P.M., by which time he could walk normally. His right arm had now recovered without special treatment, and for the first time since the onset of symptoms he was able to write. He could talk with a normal voice, but in a somewhat laboured manner. The paralysis of the left side of the face and the ptosis had completely disappeared, but there was still some slight spasm of the right side, although he could now open the eye and see quite clearly, and there was no squint.

It is difficult to account for the extraordinary variety of hysterical symptoms which developed in this officer, but from his history it is apparent that whilst some were produced by auto-suggestion others probably developed as a result of unconscious suggestion on the part of those who examined him. He must have been constitutionally suggestible, and the stress and strain of active service, and particularly a heavy bombardment with gas shells every night before he was finally gassed, must have rendered him still more suggestible. As was so often the case in the war, most of the hysterical symptoms developed gradually during the stages of his journey to the base and thence to England, whilst some only appeared after his arrival at an English hospital. The reflex protective aphonia which resulted from the irritating action of the gas on his throat was perpetuated by auto-suggestion. The pulmonary thrombosis, which appears to have developed on his way to England, led to further respiratory symptoms, which were exaggerated and perpetuated by auto-suggestion, so that to the original aphonia was added a severe dysarthria. Frequent examinations of his nervous system must have unconsciously given rise to the idea in his mind of the paralyses and spasms affecting various parts of his body, and the original protective closure of his eyes was perpetuated as blepharospasm on the right side and ptosis on the left, the former spreading so as to involve the whole of the side of the face and the latter becoming complicated by left-sided facial paralysis. The closure of the eyes led by auto-suggestion to the idea of blindness.

Apart from an attack of phlebitis, he remained fit except for a periodic left-sided headache, which made him wonder whether he was not still suffering from organic brain disease, until February, 1920, when he intervened in a domestic dispute between his sister and her husband, immediately after which several of his original symptoms recurred. He was readmitted into hospital under Captain Wilkinson on April 21st, 1920, with blepharospasm of the right eye, flaccid paralysis of the right arm, spastic paralysis of the right leg, and great difficulty in articulation. It was explained to him that owing to the doubt in his mind as to the continued existence of brain disease because of the pain in the left side of his head, and knowing, as he did, that the left side controlled the right side of the body, his mind was just waiting for an excuse to produce the old symptoms again, and this excuse was afforded by the excitement of his intervention in the family squabble. Explanation was followed by persuasion and re-education, and in the course of an hour all the symptoms had disappeared.

Hysterical Blindness in a One-eyed Man.

In the following case hysterical blindness occurred in a one-eyed man. The exciting cause would probably have been insufficient to have affected him had he not been living in perpetual fear that something might deprive him of the sight of his remaining eye.

CASE 8. *Partial hysterical blindness following shell concussion in a one-eyed man.*—Sapper C., aged 28, lost his left eye in 1914 as the result of a shot-gun accident. When he enlisted in 1917 the vision of his right eye was 6/6. He went to France in May, 1918, to work on the railway. In June, 1918, an aeroplane dropped a bomb about 25 yards away, but did not hit him. The force of the explosion, however, was sufficient to dislodge his glass eye from its socket, and simultaneously his right eye became completely blind. The total blindness only lasted for a few days, but very defective vision persisted. He also noticed that erect objects such as telegraph poles appeared to be distorted. He passed through several hospitals where the hysterical nature of the condition was recognised; he was still uncured when he was admitted to Seale Hayne Hospital under Captain Gill on Oct. 26th, 1918.

On examination there were no signs of disease in the eye. The pupil was of small size and reacted briskly to light, but on attempting to focus an object he contracted the muscles of his neck, rotating his head to the right side, and alternate slight variations in the size of the pupil were evident. When he tried to read he held the book low down and either to the left or right side. At a distance of two feet from the eye he could see objects distinctly, but anything nearer or beyond this limit was blurred and indefinite. The flinch reflex was completely absent. His mental attitude was one of great anxiety, and he was considerably depressed at the possibility of complete blindness.

He admitted that he went to France in considerable fear lest anything should happen to cause the loss of his one eye. The shock of the bomb explosion was sufficient to drive out his artificial eye, and this immediately suggested to him some damage to the other eye. Treatment directed towards relieving the patient's fears and encouraging him to relax his ciliary muscle was speedily followed by complete recovery with return of the flinch reflex. Inequality of the pull of the ciliary muscle on the lens accounted for the distortion of upright images. On discharge from the hospital some weeks later his vision was 6/6.

In the next case the primary irritation of the eyes was caused by a sandstorm. It is of interest as showing two forms of hysterical blindness in one individual; in the right eye the motor element was alone affected, but in the left eye, which was more severely damaged in the sandstorm, so that the suggestion of blindness must have been stronger in connexion with this eye, severe psychical blindness was present as well. The latter was almost as complete as the blindness of both eyes in Case 1, and corresponding with this the pupil on this side was dilated compared with the other, and only responded very sluggishly to light.

CASE 9.—*Hysterical blindness following sandstorm; 26 months' duration; cured by psychotherapy.*—Pte. F., aged 52, was caught in a sandstorm in December, 1916, without any protection for his eyes. He developed intense conjunctivitis and keratitis with severe pain and photophobia, and was unable to open his eyes. Despite the fact that the inflammation and pain gradually disappeared, he was still unable to open his eyes when he was sent home from Egypt. In March, 1917, no improvement having occurred, he was discharged from the army as permanently unfit with a disability of 100 per cent.

On Feb. 10th, 1919, he was admitted to Seale Hayne Hospital under Captain Gill. He wore a pair of dark glasses, on removal of which he was found to have severe bilateral blepharospasm. With explanation and persuasion the spasm of the orbicularis muscles and the spasm of convergence which was also present were speedily overcome. It was then found that the left eye was completely blind, so that the patient could not distinguish light from darkness, and could face the sun without blinking. The vision of the right eye was very defective, but he could pick out large objects and name some of them correctly. The pupils were unequal in size, the left being slightly the larger. Reaction to light was normal in the right side, but very sluggish in the left. Reaction to accommodation was irregular, but was sometimes brisk in both eyes. The blink reflex was present on the right side, but was completely absent on the left. Ophthalmoscopic examination showed that the

retinæ were normal. There was no conjunctivitis, but slight keratitis was present in both eyes, being most marked in the left. Captain R. Jaques, who examined him for us, reported: "I can find nothing to account for the defect in vision. The corneal nebulæ are not sufficient for this."

Complete recovery followed psychotherapy; the pupils became equal in size and reacted normally, and a brisk flinch reflex was present on both sides. In the case of the right eye all that was required was to teach the man to regulate the action of the ciliary muscle, relaxing it for distant objects and contracting it for near objects. In the case of the left eye it was necessary first of all to convince the man that he would be cured, and then to encourage him to look with it.

There has been much discussion in the past as to whether homonymous hemianopia can ever be hysterical. Several cases, however, have been described. The following case is of interest, as hemianopia of one eye was associated with partial blindness of the whole field of the other eye.

CASE 10.—*Hysterical blindness of one eye and hemianopia of the other cured by psychotherapy.*—Bdr. U., aged 25, developed severe conjunctivitis as the result of a bombardment with mustard-gas shells on March 21st, 1918. After three weeks' treatment he was able to open his eyes, but found that he was almost completely blind in the left eye, being able to see only a white mist, while with the right eye he could see imperfectly. He was admitted to Seale Hayne Hospital under Captain Gill on Nov. 5th, 1918. The eye specialist's report accompanying him stated: "Left eye completely blind, right eye 6/24." On admission there was no conjunctivitis, and no sign of corneal scarring. The pupils were equal in size and reacted sluggishly to light and accommodation. The left eye was completely blind and the flinch reflex was absent. With the right eye he could see distant objects clearly. On attempting to read with the right eye he held the book slightly to the right side, so that the light from the book fell on the nasal half of the right retina, the temporal half of which appeared to be blind. The flinch reflex was abolished except when the direction of the blow was towards the nasal half of the right retina. Peripheral vision as tested with the moving finger was extremely defective in the right eye. Ophthalmoscopic examination showed the presence of a tiny foreign body embedded in the lens of the left eye, but no other organic changes were apparent. As the result of psychotherapy, complete recovery resulted in each eye, both for near and distant objects, and the flinch reflex was completely restored.

The presence of a small foreign body in the left lens, which had apparently been driven in some time before, had given rise to no visual trouble at the time beyond making the patient aware that the vision of the left eye was less good than that of the right. This no doubt accounted for the more complete hysterical loss of vision in this eye after the gassing. Believing that he was completely blind in the left eye, he appears to have subconsciously come to the conclusion that he would necessarily be blind to everything on his left side, and in this way the loss of the nasal half of the field of vision of his right eye was suggested.

The next three cases have no connexion with the war, although two of them occurred in soldiers. For different reasons in each case the patient had unconsciously taught himself to ignore the retinal impressions produced by one eye to such an extent that it had become blind, the condition being exactly analogous to the hysterical blindness already described. In the first case the patient taught himself to see once more with the blind eye when he began to lose the sight of the other as a result of optic atrophy. In the other two cases vision was restored by psychotherapy.

CASE 11. *Hysterical blindness of left eye; recovery of left eye following loss of sight of right eye caused by syphilitic optic atrophy.*—John P., aged 40, received a blow over the left eye in 1915; he could not open it, but on raising the lid he found he was blind. During the next eight months he regained the power of the levator palpebræ superioris, but he could still only see with his right eye. He was able to carry on with his occupation as a brass-worker until August, 1919, when he found that vision with his right eye was becoming blurred by an orange-coloured mist. He now covered his right eye with a shade, and quickly taught himself to see almost perfectly with his left eye, which he had thought was blind. When he came under observation in October, 1919, it was found that the recent loss of vision in his right eye was due to advanced optic atrophy, and the slight deficiency in the left eye was due to slight changes of the same nature. The right pupil reacted to accommodation but not to light, the left pupil responded to both. There were no other physical signs of disease. The Wassermann reaction of both blood and cerebro-spinal fluid was positive, and 54 lymphocytes per c.mm. were found in the latter, together with slight excess of globulin. The optic atrophy was obviously of syphilitic origin, but there were no signs either of general paralysis or tabes. Antisyphilitic treatment was given, but no change in vision resulted.

The blindness of the left eye following the blow was suggested by the pain and bruising which prevented him from raising the lid. Four years later loss of sight in his other eye prompted him to try to see with his left eye, and to his surprise he found he could soon see fairly well. In order to abolish the blurred image produced by the right eye he covered this up. The slight deficiency in vision which persisted in the previously blind eye was not hysterical like the original total blindness, but was caused by a slight degree of optic atrophy.

In the next case the patient had a congenital defect of one eye which led to deficient vision. He had learnt to neglect what he saw with this eye, but still retained some vision in it, when at the age of 15 for no obvious reason he became almost totally blind in it. The blindness was suggested by the defective vision caused by the congenital abnormality and was cured by psychotherapy; it could thus be correctly regarded as hysterical.

CASE 12.—*Combined hysterical and organic blindness in the right eye; hysterical element cured by psychotherapy after four years.*—Pte. M., aged 19, had never seen as clearly with his right eye as with the left. In 1914, while working as a clerk, he noticed that the right eye was becoming blind, and in February, 1918, when he enlisted, he could only just distinguish light from dark with it. Captain Jaques found a persistent hyaloid artery passing from a posterior polar cataract to the optic disc. With very little persuasion he was taught to use the right eye again so well that he could read without difficulty. The pupil reactions were present in each eye, but the flinch reflex was totally abolished until vision was restored, when it became quite normal.

A severe squint dating from childhood in a man of 25 would not at first be regarded as likely to be hysterical. But in the following case not only the squint but also the associated loss of vision in the affected eye appear to have been of this nature. It is well known that when diplopia develops in adults they unconsciously train themselves to ignore one image; the same thing occurs in children who develop a permanent squint. The eye which ceases to be used in this way becomes more or less completely blind. After it has persisted for several years it is generally held that the blindness is permanent, and that while an operation may be performed to bring the eyeball into a central position, yet no improvement in vision is likely to occur. Moreover, in the event of an injury occurring to the sound eye sufficient to cause blindness, the previously squinting eye is generally said to be only capable of recovery if the squint has not been in existence for more than six or seven years.

CASE 13. *Hysterical blindness in a squinting eye; improved by psychotherapy after persisting for 20 years.*—Rifleman B., aged 25, at the age of 6 was frightened by a performing bear, and his mother states that he has squinted inwards with the left eye ever since, although she is confident that there was no squint prior to this event. On admission to Seale Hayne Hospital under Captain Gill on July 19th, 1918, with hysterical paralysis of the right hand, which was cured the following day, the left squinting eye was found to be almost completely blind. There was no paralysis of any of the ocular muscles. Captain Jaques found + 3 diopters of hypermetropia in each eye.

There is no adequate explanation why squinting should result from an error of refraction which is equal in the two eyes. It seemed probable, therefore, that the squint was really a result of the fright caused by the bear. This might have caused a hysterical convulsive seizure, associated with squinting, as is so often the case in the convulsions of children. It was assumed that the squint had become perpetuated as a hysterical symptom, and an attempt was therefore made to treat both the squint and the blindness by psychotherapy. The patient was quickly taught to keep the two eyes nearly parallel. He was then shown how to use his left eye, and at intervals the right eye was kept covered in order that the other should be in constant activity. We did not, however, succeed in curing the squint, although the patient could overcome it whenever he tried, and vision had so far recovered in the blind eye that the patient could read large type.

The disturbances in vision so far described were independent symptoms and filled the whole clinical picture. Hysterical blindness may also occur in one eye associated with paralysis of the same side as in the following case, the graphic description of which we owe to Carré de Montgeron.[7]

Hysterical hemiplegia and hemianæsthesia with total blindness, immobility, anæsthesia, and loss of conjunctival and corneal reflexes of the corresponding eye.—On Dec. 24th, 1717, Marie-Jeanne, the 27-year-old wife of François Stapart, of Epernai, was seized with "apoplexy." After three days of fighting between life and death the attack left her with paralysis and loss of sensation affecting the whole of the left side. "Of all the parts involved in this sad malady," wrote Montgeron, "the eye was the most seriously affected; the roots of the optic nerve of the left side were entirely enveloped in the obstruction of the brain; and as this nerve is the immediate organ of vision, the obstruction which deprived it of all action rendered it absolutely incapable of perceiving light. At the same time the other nerves which serve for the movements and procure the sensibility both of the globe and the eyelids were equally completely obstructed; thus the eye and the lids lost all sensation and remained immobile. ..... The insensibility was so great that one could easily put one's finger between the lids and touch the eyeball without causing any movement or pain." That is to say, she was not only completely blind in the left eye, but the

orbicularis was paralysed, the lids, conjunctiva, and cornea were anæsthetic, and the conjunctival and corneal reflexes were abolished. In the next six months the patient gradually regained the use of her arm and leg, but the condition of the eye had remained unaltered when, nearly ten years later, she had a second attack, which again affected her left side, and from which she again recovered. She was scarcely convalescent when she was struck down a third time, but on this occasion the paralysis of the left side was complete. The arm hung useless by her side, and she could only move with difficulty, dragging her useless left leg behind her. The muscles of the arm and leg became atrophied and the skin œdematous. Being convinced that no human resources could help her, and recalling how she had heard of one, Anne Angier, who had been cured of paralysis, which had affected her for 21 years, as a result of the intercession of M. Rousse, she determined to visit his tomb in the Chapelle de Ste. Anne at Avernai. "She was fortified in this resolution by a dream, which she took for a message from heaven. It seemed to her that she had been transported in the night to the tomb of M. Rousse, and that there the most perfect recovery had suddenly been vouchsafed to her."

On May 16th, 1728, in spite of the opposition of the church authorities because Rousse had not been canonised, she visited his tomb. Here she was suddenly seized with violent pain in her hand and eye. Strength returned to the left hand, so that she could join it with the right in prayer, and to her leg, so that she could kneel. The eye, which had been blind for ten and a half years, recovered its sight, its power of movement, and its sensibility. The recovery from the hemiplegia, hemianæsthesia, and blindness was complete, and there had been no relapse when Carré de Montgeron wrote his "Vérité des Miracles" 19 years later.

NARROW AND SPIRAL FIELDS OF VISION IN HYSTERIA, MALINGERING, AND NEURASTHENIA.

Retraction of the field of vision has been regarded as the most characteristic "stigma" of hysteria since Charcot first drew attention to it in 1872. Janet[8] considered it to be "the emblem of hysterical sensibility in general," and it led him to describe hysteria as a condition due to "retraction of the field of consciousness." Among ophthalmologists de Schweinitz[9]

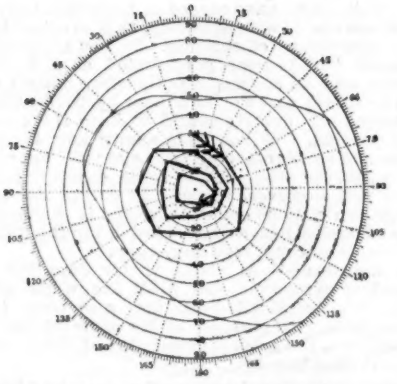

FIG. 8.—Right eye, without-inward spiral field in case of hysterical paraplegia.

regards this sign as "a permanent stigma" of hysteria, and believes its value as an aid to diagnosis to be "exceedingly great." But Babinski[10] found no change in the field of vision in any of a series of a hundred consecutive cases of hysteria, examined in great detail by methods which excluded the possibility of suggestion. Morax,[11] a former assistant of Charcot, from whom he learnt the supposed significance of the retracted field of vision, at first continued to find it in almost every patient suffering from hysterical symptoms. But over 20 years ago he became a convert to Babinski's views, and since then he has not seen a single case of hysterical retraction of the field of vision. As it is almost impossible to avoid suggesting a narrow field of vision with the perimeter in highly suggestible individuals, he estimates the fields with the finger or other familar object in hysterical patients, and although this may appear at first to be less accurate, it has the great advantage of making it easy to avoid suggesting abnormalities in the course of the examination.

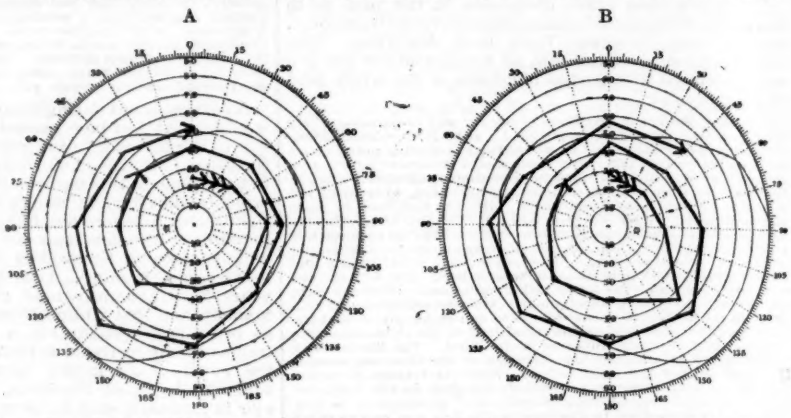

FIG. 9.—Spiral fields in case of hysterical tremor. (A) Left eye, within-outward spiral field. (B) Right eye, within-outward spiral field.

In spite of the comparatively frequent occurrence of the various hysterical disturbances of vision I have already described, I have never seen patients with hysterical symptoms affecting other parts of the body who spontaneously complained of disabilities resulting from a narrow field of vision, however closely they were cross-examined on the subject. But if a narrow field of vision is produced by testing with the perimeter the patient may subsequently complain of considerable inconvenience as a result of the cutting off of his peripheral vision.

In association with Major J. L. M. Symns[12] I examined numerous soldiers suffering from various war neuroses, who were abnormally suggestible as a result of the stress and strain of active service, some, but not all, of whom were suffering from gross hysterical symptoms. We never found any retraction of their field of vision until the perimeter was used. But the perimeter invariably resulted in the suggestion of a narrowed field, however carefully it was used. Moreover, if the examination was continued after the first field was marked out a spiral field was always obtained (Fig. 8) identical with that which has hitherto been regarded as a stigma of hysteria. We believe that the reason why a spiral field of vision, which is the natural result of continued suggestion, has not been found in a larger proportion of hysterical cases showing a narrow field of vision is simply because it has not been looked for, the examiner being content when he has marked the limit of vision a single time in each direction.

It has generally been taught that a spiral field of vision is a result of fatigue, and it has even been stated that it is more frequently a symptom of neurasthenia than of hysteria. We have found that this is not the case, the *inward* spiral, which has hitherto alone been described, being a result of the method employed in using the perimeter. An *outward* spiral is always obtained instead of an inward one if the white disc of the perimeter is moved outwards instead of inwards, as is commonly done. (Fig. 9.) By varying the direction in which the disc was moved we could produce an inward spiral one day and an outward spiral another day with the same eye, or an inward spiral with one eye and an outward spiral with the other at the same time. (Fig. 10.) There is no question of any special suggestions made by us in our method of using the perimeter, as identical results were obtained by other observers, who marked out the fields of vision for us without knowing the nature of the cases or the object we had in view in obtaining the tracings. Moreover, we have always obtained normal fields in normal individuals, whether the disc was moved inwards or outwards.

In the observations on "experimental malingering," which I described in my first lecture, we asked 27 individuals, who were pretending to be paralysed on the right

side, and none of whom had mentioned any disturbance in vision when detailing their symptoms, whether they could see as well with the right eye as the left; seven replied that they had noted some impairment of vision in the right eye. On testing the field of vision with a finger no narrowing was observed, and they explained that the deficiency they had spoken about was a blurring or general loss of clearness of vision. But when tested with a perimeter all of the seven showed a narrow field on the right side, and one had a slighter narrowing on the left side. In the only two cases in which it occurred to us to continue the investigation after the first field had been marked out a spiral was obtained (Fig. 11), which was identical in character with that supposed to be characteristic of hysteria.

Ocular Aura in Hysterical Fits.

I have seen several cases of hysterical attacks which were preceded by a visual aura. Most of the cases in soldiers dated from a period of strenuous activity in the glare of Mesopotamia. In the following case, in which the attacks consisted of headache and loss of consciousness and not of epileptiform convulsions, an understanding of the psychological processes involved resulted in immediate recovery from a very incapacitating condition which had persisted for two years.

Hysterical photophobia with attacks of headaches and loss of consciousness.—Captain S. was wounded in the head in 1915. He was temporarily paralysed on the right side and suffered from violent headaches, which culminated in loss of consciousness. He gradually improved, and no more attacks occurred after the end of 1916. He went back to France in 1917. Soon afterwards he had some acute mental disorder, for which he was in hospital for five months; after this he was invalided out of the service, but was fit enough to be sent to Greece on diplomatic duty. In 1918 he went to Salonica for an operation to be performed on his heel. Some ether appears to have been accidentally dropped into his eyes during the operation,

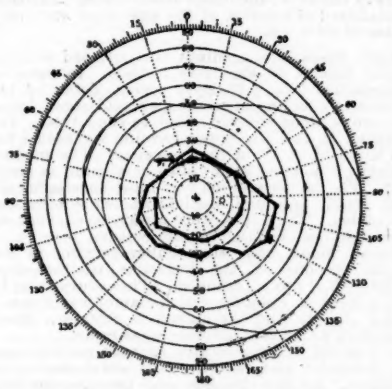

FIG. 11.—Spiral contraction of field of vision in a case of "experimental malingering."

as when he came round from the anæsthetic he found his eyes were so painful that he could not open them, and he thought he had lost his sight. At the end of a month he could see a little, but he could not read and had always to wear the darkest glasses he could get, as directly his eyes were exposed to the daylight he had a violent headache, which was followed in a few minutes by complete loss of consciousness.

I first saw him in February, 1920. It was very difficult to examine his eyes as he kept them tightly closed. When the dark glasses were removed, or even when he was wearing them, he never opened his eyes widely, but he could see enough to get about without assistance. He was very depressed about his condition. His arm and leg were quite well, and there were no physical signs of organic disease. There was a slight depression of the skull in the region of his wound, but it was not tender and there was no bony deficiency.

I explained to the patient that when the removal of the bandages from his eyes for the first time after they had been injured was followed by a headache, he subconsciously associated this with the headaches which had followed the wound to his head, and that he had consequently suggested to himself the same sequel—loss of consciousness. The attacks of headache followed by unconsciousness now became associated in his mind with his eyes instead of with the original injury to his head. Consequently an attack occurred every time he removed his dark glasses, and for this reason he feared to face the light. The blepharospasm and deficient sight were produced in the way I have already described in connexion with the hysterical disorders of vision caused by gassing. Having discussed this explanation with him in great detail I promised him he would recover completely when he came to me for treatment the next day. He arrived fully convinced he

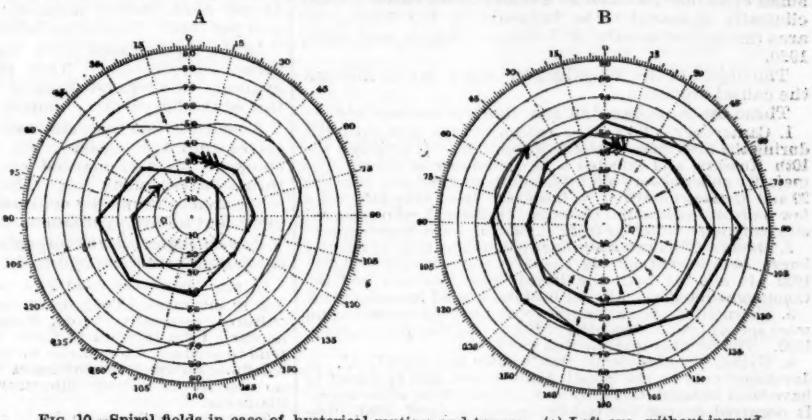

FIG. 10.—Spiral fields in case of hysterical mutism and tremor. (A) Left eye, without-inward spiral field. (B) Right eye, within-outward spiral field.

would be cured, having thoroughly grasped the explanation I had given him of the origin of his symptoms. Without difficulty I persuaded him to remove his dark glasses, keep his eyes widely open, and accommodate his vision for near and distant objects. For the first time for two years he was able to keep his eyes open without getting a headache, and an hour later he went for a walk in the sun without glasses. In the four months which have elapsed he has had no further attacks of headache and loss of consciousness. He has just married and is shortly returning to his diplomatic duties.

I believe that hysterical fits are much more common than is generally supposed, and that many such cases are diagnosed as epilepsy and treated for years with bromides. It has been said that a definite aura is uncommon in hysteria, but common before true epileptic fits. I am convinced that this is incorrect, and that some kind of warning invariably precedes an hysterical attack. It is indeed this "warning," which acts as the suggestion, which is the exciting cause of each fit. A symptom which has once produced an attack will be likely to produce another whenever it recurs, because it subconsciously reminds the patient of his earlier attack and thus suggests that another will occur.

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DONATIONS AND BEQUESTS.—The late Mr. John William Barclay, of Manchester, by his will left £1000 each to the Manchester Royal Infirmary and Dispensary and the Salford Royal Hospital; £500 each to the Ancoats Hospital and Ardwick and Ancoats Dispensary, Manchester Hospital for Consumption, Manchester Royal Eye Hospital, Manchester Children's Hospital, Pendlebury, St. Mary's Hospital, Manchester, and the British Hospital, Buenos Aires.

AN INVESTIGATION INTO THE CAUSAL ORGANISM OF INFLUENZA.

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THE following deals with the investigation of three small epidemics, as well as a few sporadic cases of what clinically appeared to be influenza, in the Shorncliffe area during the months of February, March, and April, 1920.

The object of the investigation was to try to find out the causal organism.

These cases appeared in four definite centres, viz.:—

1. Canterbury.—This was a sudden, though mild, epidemic during the first three weeks of March, 1920. It attacked the 10th Hussars, and infected a large number of them. The majority suffered very slightly, and there were only between 20 and 30 cases admitted to hospital. Here they infected a few more of the hospital patients. Of these 17, who appeared clinically to be suffering from influenza, were investigated.

2. Dover.—This was a similar epidemic to that at Canterbury. It occurred during the first three weeks of April, 1920. It affected both the Royal Irish Fusiliers and the Connaught Rangers. Of the hospital cases I investigated 6.

3. Shorncliffe.—Here the cases were entirely sporadic, and were spread over the months of February, March, and April, 1920. The number investigated was 8.

4. Hythe.—This epidemic was sudden and short-lived. It developed only in the Small Arms School, and appeared to have been brought there by new arrivals from other areas. It occurred during the last two weeks of April, 1920. The number of cases investigated was 9.

Before commencing the study of these cases it might be of interest to draw attention to the enormous fallacies present in the so-called influenza returns. The diagnosis, depending as it does in most cases entirely on clinical evidence alone, naturally tends to great errors. Cases may be labelled under any number of names—e.g., migraine, headache, tonsillitis, bronchitis, laryngitis, rheumatism, &c. The converse also holds good, as a large number of diseases, more especially during and immediately after an influenza epidemic, are conveniently and popularly diagnosed as influenza. This naturally cannot be helped in the present state of our knowledge regarding the disease, but ought to make one very chary in accepting any statistics or statements based on these returns.

(1) CLINICAL SIGNS AND SYMPTOMS.

These coincided in the cases derived from the Canterbury, Dover, and Shorncliffe areas, but were slightly different in those from the Hythe epidemic.

In the Canterbury, Dover, and Shorncliffe areas the cases showed the following characteristics: (1) Sudden onset in all; (2) rise of temperature in all; (3) pulse-rate increased in correspondence with the rise of the temperature (i.e, if the case was not complicated); (4) respiratory rate depended on the amount of lung involvement; (5) headache in 93 per cent.; (6) pains in limbs, back, or chest in 80 per cent.; (7) suffusion and injection of eyes in none = 0 per cent.; (8) coryza in 36 per cent.; (9) bronchitis in 83 per cent.—this usually did not develop until two to four days after the onset of the illness; (10) tonsillitis and pharyngitis in 80 per cent. (marked, often patient's chief complaint); (11) laryngitis (late in development) in 6 per cent.; (12) herpes labialis in 33 per cent.

In this series of cases there was only one death. This occurred from a secondary septic broncho-pneumonia in one of the Dover cases. The complications were as follows:—

Three cases developed broncho-pneumonia, and of these one died.
One case is suspected of having developed tuberculosis of the lungs.
One case developed diphtheria.
" " " dementia præcox.
" " " subacute rheumatism.
" " " furunculosis.
" " " nephritis.

In the Hythe cases the following characteristics were noted: (1) Sudden onset, occasionally with history of a slight rigor; (2) rise in temperature in all; (3) increase in pulse-rate corresponding to the rise in temperature (i.e., if a non-complicated case); (4) respiratory rate depended largely on the lung involvement; (5) headache in 100 per cent; (6) pains in limbs, back, or chest in 77 per cent.; (7) suffusion and injection of the eyes was present in 100 per cent., the facies was characteristic, and the watery, bleary appearance of the eyes reminded one of an early case of measles; (8) coryza in all = 100 per cent.; (9) bronchitis in all = 100 per cent.; (10) tonsillitis and pharyngitis in 44 per cent. (never marked); (11) laryngitis in none = 0 per cent.; (12) herpes labialis in none = 0 per cent.

In the Hythe cases there was one death from septic broncho-pneumonia. This patient showed marked cyanosis, and reminded one of the picturesque description of the laity—viz., "purple or blue influenza."

It will be seen that clinically the cases divide themselves into two classes: (1) Those from the Hythe epidemic showed marked eye symptoms and slight throat involvement. (2) The other cases from the other areas showed by contrast marked throat involvement, but no eye symptoms.

Bacteriologically, the organisms isolated as *B. influenzæ* (Pfeiffer) correspond to the following description:—

In size they were from 1·0μ to 2·0μ in length by about 0·4μ in thickness. They do not occur in chains; but in subcultures, especially if old, filamentous forms sometimes appear. I am inclined to think that the organisms which tend to produce filamentous forms on subculture belong to a definite group of the influenza bacillus, as some varieties, no matter how long subcultured, will never produce filaments.

They stain feebly with basic aniline dyes, and are best stained with either: (*a*) weak solution (1 in 10) of carbol-fuchsin for five to ten minutes, or (*b*) a strong solution of carbol-fuchsin for from one to two minutes. The organism is definitely Gram-negative, non-motile, and non-sporing.

Bacillus influenzæ (Pfeiffer) grows very well on boiled blood agar, feebly on blood-smeared agar, and not at all on subculture on ordinary agar.

The optimum temperature for growth is about 37° C. After 24 hours' growth on boiled blood agar the organisms begin to show a variety in their staining reaction, some bacilli taking the stain strongly, whilst others stain very feebly.

The boiled blood agar medium was eminently satisfactory. It was found that growth was most luxuriant on a slightly moist medium; therefore plates were left only 24 hours in the 37° C. incubator before being inoculated.

The standard of reaction of the agar used was that with a P_H value of 7·4 to 7·8.

In some cases the medium was titrated with equally successful results by the Eyre method. In these cases it was standardised to +10 Eyre scale. Tubes of the agar were melted by boiling in a saucepan, and about 1·0 c.cm. of sterile human blood directly added to each tube. This was well shaken to prevent lumps forming and boiled for from two to three minutes in the saucepan. The medium was then ready for pouring into plates or sloping in large tubes (6" × 1"). The latter method was most successful, as there was not nearly as much medium wasted by contamination as with plates. The tubes were always used whenever the organism had been isolated in pure culture.

On boiled blood agar, after cultivation for 24 hours at 37° C., the colonies of the influenza bacillus appear as moist, greyish, "filmy" colonies. These vary from the size of a pin's head to colonies with a diameter of 3 mm. The edges are regular and the outline is circular. The larger colonies show a typical umbonate appearance.

When touched with a platinum loop the colonies appear of a slimy character and can be easily emulsified in normal salt solution. As they become older they become drier and more friable.

The method of examining the cases for the presence of *B. influenzæ* was by means of West's post-nasal swabs, as used in cerebro-spinal fever work.

At the commencement of the investigation 200 men were examined to find out the carrier-rate. These were swabbed in three ways—viz.: (*a*) Anterior nasal route; (*b*) post-nasal route; (*c*) ordinary throat swab.

The largest number of positives were obtained by the post-nasal method, the smallest by the anterior nasal method. Thus the post-nasal method was adopted as a routine.

Boiled blood agar plates were immediately inoculated and kept in special carriers at a constant temperature of 37° C. until the laboratory was reached, when they were at once

deposited in the 37° C. incubator, and left there for 24 hours. The plates were then examined and likely colonies picked off. Next day these subcultures were stained by Gram's method, and if satisfactory were subcultured until absolutely pure. During this process an agar plate was always inoculated to see if any growth took place. No organism which on subculture grew on ordinary agar at 37° C. was regarded as *Bacillus influenzæ* (Pfeiffer).

The pure cultures were used for the preparation of various antigens and emulsions. If no influenza bacillus was cultured from the suspected case at the first swabbing this was repeated twice before a negative result was accepted. This definitely increased the number of positives obtained. Thus of 20 positives—

16 were found positive from the first swab = 80 per cent.
3 " " " " second " = 15 "
1 was " " " third " = 5 "

In the last case the trouble was the presence of a contaminating organism in the throat which rapidly overgrew the whole plate.

The examination of direct films was also tried. This gave an idea of the relative proportion of the *B. influenzæ* to the other organisms in the naso-pharynx. It, however, was found that some cases which were negative for *B. influenzæ*, as examined by the direct film method, were positive on culture.

Results of Swabbing in the Four Centres.

The results of swabbing in the four centres were as follows:—

Canterbury cases.—In all 17 cases were examined, and all were found positive. In 15 absolutely pure subcultures were eventually obtained. In 2 the organism unfortunately died out before a pure culture could be obtained. In these cases the most troublesome contaminating organism was a small hæmolytic streptococcus which appeared to grow in the midst of, as well as around, the influenza colonies.

Dover cases.—These were six in number, and all were found positive. In the case that died a pneumococcus was also isolated. This latter case was difficult to investigate, as far as the throat swabbing was concerned, because of the presence of a rapidly growing large Gram-negative bacillus.

Shorncliffe cases.—Eight cases were examined. Seven were positive and one was persistently negative in spite of frequent examinations. It was diagnosed as due to infection by the *B. influenzæ* on the clinical signs plus the positive agglutination and complement-fixation results. Taking the cases from these three areas, which were 31 in number, one finds that *B. influenzæ* was isolated from the naso-pharynx of 30—i.e., a percentage of 96·8 per cent. positive.

Hythe cases.—The result of the investigation of this epidemic came more or less as an anticlimax to the previous work, as one had begun to expect to find *B. influenzæ* in the large majority of suspected cases. Here nine cases were investigated. *Bacillus influenzæ* was found in only one, and here, I think, not as a causal agent of the disease, but merely as a component of the naso-pharyngeal bacterial flora. The reason for this statement being that this case yielded negative results to both agglutination and complement-fixation tests. Further, as the carrier-rate for *B. influenzæ* in that area at the time of the epidemic was 8 per cent., the presence of one positive throat swab in nine cases was to be expected. Of the other organisms present the only one which was common to all was a Gram-negative diplococcus which showed the following characteristics. It grew well on blood agar at 37° C. In staining by Gram's method it was rather difficult to decolorise in young cultures (up to 24 hours), but was easily decolorised in older cultures. It was very difficult to emulsify in saline. It gave no agglutination with any of the types of meningococcal agglutinating sera. It gave no agglutination with any of the sera obtained from five of the cases. Complement-fixation tests were not tried.

Its cultural characteristics were as follows:—No liquefaction of gelatin (up to ten days) at 20° C.; granular deposit in peptone water, and bouillon; no production of indol; acid in glucose and maltose; no change in dulcite, inulin, lactose, mannite, saccharose, dextrin, galactose, adonite, sorbite, lævulose, raffinose, and arabinose up to ten days. It was non-hæmolytic on blood media. No change was noticed in litmus milk after ten days' incubation at 37° C. In the case that died, besides the above-mentioned coccus, a hæmolytic streptococcus, a pneumococcus, and a staphylococcus were isolated from the naso-pharyngeal swab.

(2) AGGLUTINATION RESULTS.

The agglutination of the isolated organisms by means of the patients' sera was next investigated. The well-known Dreyer's technique was used.

The emulsion was made from a culture which had been subcultured daily for from six to eight times. Enough was made up at once for all purposes, as it was impossible to keep so many subcultures growing at the same time. It was found that heating the emulsion for one hour at 58° C. diminished its agglutinability, and that a slightly more opalescent emulsion than that of the usual standard agglutinable cultures for the typhoid group of organisms gave the best results.

The emulsions were preserved by means of 0·1 per cent. formalin. The agglutination was carried out in an incubator at 55° C. for from 24 to 36 hours, care being taken to keep the atmosphere in the incubator moist. In some few cases an incubation of 36 hours appeared essential to get the best results. As a routine the tubes were examined at the end of 24 hours, and after the results had been noted they were replaced for another 12 hours, and again examined. The type of agglutination varied a great deal, sometimes being of a coarse character with heavy flocculi, whilst in others it was of a fine granular type.

The dilutions used were 1 in 25, 1 in 50, 1 in 150, and 1 in 250.

In all cases a saline control was put up as well as a known positive and known negative.

The following were the emulsions used:—Ha., Ed., Up., Kn., Ke., Bo., St., Cu., Fa., Ta., Dr. Di., Tr., Ha., Bu., Ne., Ca., El., Ke., Pa., An., Se., Ph., Ly., Bo., As., Fo., Mu., Du., 63, 407, 126, 203, 65, 67, 78, 36, 49. The numbered emulsions were obtained from some of the organisms derived from positive carriers of *B. influenzæ*. To simplify the description the results will be put in tabular form.

The 17 cases given in Table I. were those examined from the Canterbury area. The only ones which showed any agglutination were those in which the temperature was still elevated when the blood serum was examined. The others, where the blood was withdrawn during convalescence, showed definite negative results. The possibility of the organisms isolated being poor for agglutination purposes was recognised, and it was proposed to examine any further cases, not only during the time of the fever, but, if possible, again during convalescence. The next series of cases examined were from the Dover area. The tabulated results are as given in Table II.

Table II. hardly needs any explanation. Agglutination appears in all these cases. The results as far as the emulsion of Ly., Fo., and An. are concerned must be disregarded, for, as will be shown later, they gave non-specific agglutination with normal sera. Thus agglutination in the above cases appears to be present early in the disease, and from consideration of the Canterbury series it seems to rapidly disappear immediately the temperature has fallen. Some emulsions, such as those of El., Mu., and Pa. are much more easily agglutinated than the others.

The agglutination results in the Shorncliffe cases (Table III.) corroborate the findings in the Canterbury and Dover cases. In order to clinch the statement that influenza agglutinins rapidly disappear from the blood during convalescence blood was again withdrawn from some cases during convalescence, and compared with the agglutination results obtained from the same blood sera withdrawn during the fever. The results are shown in Table IV. The serum of Mu. was inserted by way of being a control. The temperature was still up when the serum was withdrawn and the case was a pretty severe one. The agglutination titre had risen. In the other cases it is seen that without exception the influenza agglutinins in the blood had rapidly disappeared soon after the temperature had fallen.

The next series of cases to be examined were those from the Hythe epidemic. In only one case—viz., Du.—was the *B. influenzæ* isolated from the throat swab. Blood could only be obtained from five of the cases—viz., Pa., Du., McG., Ea., and Pe. The results are given in Table V. In none of these cases, though the blood was withdrawn at the most favourable time, was there any agglutination with emulsions of known agglutinable strains of *B. influenzæ*.

Controls.—Next all the emulsions which gave positive agglutination results in the above-mentioned cases from all areas were tested with 20 normal sera. The emulsions of Fo., An., and Ly. gave numerous non-specific agglutinations, and are therefore to be disregarded in reading any of the above-mentioned results. The emulsions of Ha., Cu., El., Mu., Ke., Bo., Pa., 126, and 203 gave no agglutination in any dilution of from 1 in 25 to 1 in 250 with the control sera. It is, therefore, concluded that these emulsions are only

TABLE I.

(A) Patient's serum used. (B) Emulsion used. (C) Agglutination titre. (D) Time between onset of illness and withdrawal of blood. (E) Time between last day of fever and withdrawal of blood.

– means no agglutination. † means partial agglutination. †† means total agglutination.

(A)	(B)	(C) 1 in 25	1 in 50	1 in 150	1 in 250	(D)	(E)
1. Kn.	Kn.	–	–	–	–	16 days.	Last day of fever.
	Ha.	†	††	†	–		
	Fa.	–	–	–	–		
	Ke.	–	–	–	–		
2. Ke.	Ke.	–	–	–	–	16 days.	10 days.
	Up.	–	–	–	–		
	Ha.	–	–	–	–		
	Ed.	–	–	–	–		
	63	–	–	–	–		
3. Bo.	Bo.	–	–	–	–	18 days.	11 days.
	Ed.	–	–	–	–		
	407	–	–	–	–		
	126	–	–	–	–		
	203	–	–	–	–		
4. Wh.	203	–	–	–	–	17 days.	11 days.
	Ha.	–	–	–	–		
	St.	–	–	–	–		
	Di.	–	–	–	–		
	407	–	–	–	–		
5. Pe.	63	–	–	–	–	16 days.	10 days.
	65	–	–	–	–		
	Bu.	–	–	–	–		
	Ne.	–	–	–	–		
	Ha.	–	–	–	–		
6. Ta.*	—	—	—	—	—	—	—
7. Cu.	Cu.	–	†	†	–	15 days.	Temp. still up.
	Ke.	–	–	–	–		
	Bu.	–	–	–	–		
	Dr.	–	–	–	–		
	Ed.	–	–	–	–		
8. Fa.	Fa.	–	–	–	–	13 days.	(See below).
	Ed.	–	–	–	–		
	65	–	–	–	–		
	63	–	–	–	–		
	407	–	–	–	–		
9. St.	St.	–	–	–	–	15 days.	3 days.
	Up.	–	–	–	–		
	Ed.	–	–	–	–		
	65	–	–	–	–		
	63	–	–	–	–		
10. Dr.	Ed.	–	–	–	–	11 days.	4 days.
	Dr.	–	–	–	–		
	Up.	–	–	–	–		
	Di.	–	–	–	–		
	Ne.	–	–	–	–		
11. Di.	407	–	–	–	–	15 days.	(See below).
	203	††	–	–	–		
	Di.	–	–	–	–		
	Kn.	–	–	–	–		
	126	††	††	†	–		
12. Tr.	Cu.	–	–	–	–	11 days.	3 days.
	Tr.	–	–	–	–		
	Fa.	–	–	–	–		
	Di.	–	–	–	–		
	St.	–	–	–	–		
13. Ha.	Ha.	–	–	–	–	16 days.	9 days.
	Ed.	–	–	–	–		
	Up.	–	–	–	–		
	Ha.	–	–	–	–		
	Kn.	–	–	–	–		
14. Bu.	Bu.	–	–	–	–	11 days.	5 days.
	Ha.	–	–	–	–		
	203	–	–	–	–		
	407	–	–	–	–		
	126	–	–	–	–		
15. Ne.	Ne.	–	–	–	–	14 days.	8 days.
	St.	–	–	–	–		
	Up.	–	–	–	–		
	Cu.	–	–	–	–		
	Ed.	–	–	–	–		
16. Ca.	Ca.	–	–	–	–	13 days.	2 days.
	St.	–	–	–	–		
	Fa.	–	–	–	–		
	65	–	–	–	–		
	63	–	–	–	–		
17. El.	El.	††	††	††	†	6 days.	Last day of fever.
	Ha.	–	–	–	–		
	Up.	–	–	–	–		
	Kn.	–	–	–	–		
	Ed.	–	–	–	–		

Case 8.—Temperature still up. Temperature rose for second time on the seventh day after having been normal for three days.
Case 11.—Temperature still up. Seventh last day of fever. * Refused to have blood withdrawn.

TABLE II.—*Cases from Dover Area.*

18. Bo.	Bo.	†	††	††	†	(?)*	(See below.)
	El.	†	–	–	–		
	Ed.	–	–	–	–		
	Mu.	–	–	–	†		
	Ke.	–	–	–	–		
	Pa.	–	–	–	–		
19. An.	El.	–	–	–	–	5 days.	Temp. still up.
	Mu.	†	–	–	–		
	Ph.	–	–	–	–		
	Ly.	††	†	–	–		
	An.	†	††	–	–		
20. Ly.	Ly.	††	†	–	–	7 days.	Temp. still up.
	An.	††	†	–	–		
	El.	†	–	–	–		
	Ph.	–	–	–	–		
	Bo.	–	–	–	–		
	Mu.	–	–	–	–		
21. Ph.	Bo.	††	††	††	–	6 days.	,,
	Ph.	†	–	–	–		
	Mu.	–	–	–	–		
	Ke.	††	†	–	–		
	El.	††	††	–	–		
	Up.	–	–	–	–		
22. Se.	Pa.	††	††	††	†	5 days.	1 day.
	Ke.	†	–	–	–		
	El.	††	†	–	–		
	Se.	–	–	–	–		
	As.	–	–	–	–		
	Fo.	††	†	–	–		
	Mu.	††	††	†	–		
23. Mu.	Mu.	††	†	†	†	8 days.	Temp. still up.
	Fo.	††	††	–	–		
	As.	–	–	–	–		
	Se.	–	–	–	–		
	Pa.	††	††	††	†		
	Ke.	†	–	–	–		
	El.	††	†	–	–		

* Patient unconscious. Unable to get reliable history.

Case 18.—Temperature still up. Died four days later.

TABLE III.—*Sporadic Cases from the Shorncliffe Area.*

24. Ke.	El.	††	–	–	–	4 days.	Temp. still up.
	Mu.	–	†	–	–		
	Pa.	††	††	††	†		
	Ke.	†	†	†	–		
	Ha.	–	–	–	–		
	Up.	–	–	–	–		
	Ha.	–	–	–	–		
25. Pa.	Tr.	–	–	–	–	5 days.	Last day of fever.
	Ha.	–	–	–	–		
	Ha.	–	–	–	–		
	Pa.	††	††	–	–		
	Ke.	–	–	–	–		
	El.	††	–	–	–		
	Mu.	–	–	–	–		
	Ph.	–	–	–	–		
26. Ed.	Ha.	–	–	–	–	18 days.	17 days.
	Ed.	–	–	–	–		
	Up.	–	–	–	–		
	63	–	–	–	–		
	67	–	–	–	–		
	78	–	–	–	–		
	126	–	–	–	–		
	65	–	–	–	–		
	203	–	–	–	–		
27. Ha.	Ha.	–	–	–	–	19 days.	12 days.
	Up.	–	–	–	–		
	Ed.	–	–	–	–		
	63	–	–	–	–		
	67	–	–	–	–		
	203	–	–	–	–		
28. Up.	36	–	–	–	–	6 days.	2 days.
	49	–	–	–	–		
	63	–	–	–	–		
	65	–	–	–	–		
	78	–	–	–	–		
	203	–	–	–	–		
	Up.	–	–	–	–		
	Ed.	–	–	–	–		
	Ha.	–	–	–	–		
29. St.*	Ly.	††	†	–	–	3 days.	Temp. still up.
	An.	††	–	–	–		
	Mu.	–	–	–	–		
	Fo.	††	††	–	–		
	El.	††	††	–	–		
	Bo.	–	–	–	–		
	Ke.	–	–	–	–		
	Pa.	–	–	–	–		
30. As.	Se.	–	–	–	–	3 days.	Temp. still up.
	As.	–	–	–	–		
	Fo.	††	†	–	–		
	Mu.	††	††	†	–		
	El.	–	–	–	–		
	Ke.	–	–	–	–		
	Pa.	–	–	–	–		
31. Fo.	El.	–	–	–	–	5 days.	,,
	Ke.	–	–	–	–		
	Pa.	–	††	†	–		
	Mu.	††	††	††	†		
	Fo.	††	†	–	–		
	As.	–	–	–	–		
	Se.	–	–	–	–		

* Throat swab was negative for *B. influenzæ*.

TABLE IV.

As., 1st exam.	Mu.	††	††	†	–	3 days.	Temp. still up.
	El.	–	–	–	–		
	Pa.	–	–	–	–		
As., 2nd exam.	Mu.	–	–	–	–	18 days.	6 days.
	El.	–	–	–	–		
	Pa.	–	–	–	–		
Pa., 1st exam.	Mu.	–	–	–	–	5 days.	Temp. still up.
	El.	††	††	–	–		
	Pa.	††	–	–	–		
Pa., 2nd exam.	Mu.	–	–	–	–	30 days.	24 days.
	El.	–	–	–	–		
	Pa.	–	–	–	–		
Ph., 1st exam.	Ke.	††	†	–	–	6 days.	Temp. still up.
	Ph.	†	–	–	–		
	Bo.	††	††	††	–		
	El.	††	††	–	–		
Ph., 2nd exam.	Ke.	–	–	–	–	23 days.	13 days.
	Ph.	–	–	–	–		
	Bo.	–	–	–	–		
	El.	–	–	–	–		
Ke., 1st exam.	Pa.	††	††	††	†	4 days.	Temp. still up.
	Ke.	†	†	†	–		
	El.	††	–	–	–		
Ke., 2nd exam.	Pa.	–	–	–	–	28 days.	9 days.
	Ke.	–	–	–	–		
	El.	–	–	–	–		
Mu., 1st exam.	Ke.	†	–	–	–	8 days.	Temp. still up.
	El.	††	†	–	–		
	Mu.	††	†	†	†		
Mu., 2nd exam.	Ke.	††	††	–	–	15 days.	,,
	El.	†	††	††	†		
	Mu.	††	††	–	–		

TABLE V.—*Cases from Hythe Area.*

(A) to (E) as in tables on opposite page.

(A)	(B)	(C) 1 in 25	1 in 50	1 in 150	1 in 250	(D)	(E)
Pa.	Ph.	—	—	—	—	6 days.	2nd last day of fever.
	Ke.	—	—	—	—		
	Pa.	—	—	—	—		
	Bo.	—	—	—	—		
	El.	—	—	—	—		
Du.	Du.	—	—	—	—	4 days.	Last day of fever.
	El.	—	—	—	—		
	Mu.	—	—	—	—		
McG.	El.	—	—	—	—	8 days.	Last day of fever.
	Ph.	—	—	—	—		
	Ke.	—	—	—	—		
	Pa.	—	—	—	—		
	Bo.	—	—	—	—		
Ea.	Ph.	—	—	—	—	6 days.	3rd last day of fever.
	Ke.	—	—	—	—		
	Bo.	—	—	—	—		
	Pa.	—	—	—	—		
	El.	—	—	—	—		
Pe.	El.	—	—	—	—	6 days.	Last day of fever.
	Ph.	—	—	—	—		
	Ke.	—	—	—	—		
	Pa.	—	—	—	—		
	Bo.	—	—	—	—		

agglutinated by sera containing specific agglutinins for *B. influenzæ* (Pfeiffer).

Conclusions Derived from the Agglutination Work.

That in those cases derived from the Canterbury, Dover, and Shorncliffe areas, (*a*) specific agglutinins for *B. influenza* (Pfeiffer) appeared early in the disease (in some cases at the third day); (*b*) these agglutinins disappeared rapidly when convalescence set in—i.e., when the temperature had again become normal.

Regarding the *B. influenzæ* from an agglutination point of view: (1) A large number of strains are non-agglutinable when tested with sera derived from cases at all stages of the illness. (2) Some few types are easily agglutinated; they do not appear to be differentiated into any particular definite classes, but it must be remembered that all these cases occurred in one district and were probably all of the same origin. I had not the opportunity of testing the blood sera against strains derived from other remote districts. (3) Some bacilli isolated gave non-specific agglutination—thus the advisability of control sera.

Now, regarding the Hythe epidemic, *B. influenzæ* was isolated from one case only (Du.). In none of the cases was any agglutination obtained with emulsions of *B. influenzæ*. The one case was regarded, as far as the presence of the *B. influenzæ* was concerned, as a carrier of that organism.

A Gram-negative diplococcus was isolated in all the cases, and an emulsion prepared from each. These emulsions were put up with sera from 5 of the cases in dilutions of 1 in 25 to 1 in 250. In no case was there any agglutination. The sera used were from the cases Pa., Du., McG., Ea., Pe. The emulsions used were made from the diplococci isolated from the following cases: Pa., Du., McG., Bl., Ea., Mrs. Ea., Pe., and Mrs. Pe.

The negative agglutination results do not support the view of the diplococcus being the causal organism in this epidemic.

(3) COMPLEMENT FIXATION.

The usual technique was employed. The main details of this were as follows:—

The fixed volume in each tube was always 3 c.cm. The washed sheep's blood corpuscles were used in a 3 per cent. suspension. The hæmolysin was titrated before each experiment to find out its minimum hæmolytic dose (M.H.D.). In the titration of the antigens, as well as in the tests proper, a dose of 2 M.H.D.'s of hæmolysin was used—i.e., the hæmolytic couple consisted of 1 c.cm. of a 3 per cent. suspension of washed sheep's blood corpuscles, in which there was also contained 2 M.H.D.'s of hæmolysin.

The complement was 1 c.cm. of a 1 in 20 dilution of fresh guinea-pig's serum in saline (0·85 per cent.). The remaining 1 c.cm. in the tubes consisted of the varying amounts of antigen, patient's serum, and saline.

The antigens used were three in number. They were polyvalent, and were found to give exactly the same results.

The method of preparation was simple. The various strains were cultivated for 48 hours on boiled blood agar at 37° C., and the resulting growth washed off with saline solution. Care was taken not to include any of the medium. The emulsion was well shaken up in order to make it homogeneous and heated for one hour at 58° C. in the water-bath; 0·5 per cent. carbolic was then added as a preservative.

TABLE VI.

— Means complete hæmolysis.
† ,, nearly complete hæmolysis.
†† ,, moderate hæmolysis.
††† ,, faint hæmolysis.
†††† ,, no hæmolysis.

	Name.	Results and serum used. 0·05 c.cm.	0·1 c.cm.	0·2 c.cm.	Antigens used.	Time between onset of illness and withdrawal of blood.	Time between last day of fever and withdrawal of blood.
Canterbury cases.	1. Kn.	—	—	—	1 & 2.	16 days.	Last day of fever.
	2. Ke.	—	†	†††	1, 2, & 3.	16 ,,	10 days.
	3. Bo.	—	†	†††	1, 2, & 3.	18 ,,	11 ,,
	4. Wh.	—	†	††	1 & 2.	17 ,,	11 ,,
	5. Pe.	—	—	—	1 & 2.	16 ,,	11 ,,
	6. St.	—	—	—	1 & 2.	15 ,,	3 ,,
	7. Cu.	—	†	†	1 & 2.	15 ,,	Temp. still up.
	8. Fa.	—	—	—	1 & 2.	13 ,,	2nd last day of fever.
	9. Ta.*						
	10. Dr.	—	—	—	1, 2, & 3.	11 ,,	4 days.
	11. Di.	—	—	—	1, 2, & 3.	15 ,,	7th last day of fever.
Dover cases.	12. Tr.	—	—	—	1 & 2.	11 ,,	3 days.
	13. Ha.	—	—	†	1 & 2.	16 ,,	9 ,,
	14. Bu.	—	†	††	1 & 2.	11 ,,	5 ,,
	15. Ne.	—	†	††	1 & 2.	14 ,,	8 ,,
	16. Ca.	—	†	††	1 & 2.	13 ,,	2 ,,
	17. El.	—	—	—	1 & 2.	6 ,,	Last day of fever.
	18. Bo.	—	—	†	1, 2, & 3.	? 1st wk.	Temp. still up.
	19. An.	—	—	†	1, 2, & 3.	5 days.	,,
	20. Ly.	—	†	†	1, 2, & 3.	7 ,,	,,
	21. Ph.	††	†††	††††	1, 2, & 3.	6 ,,	,,
	22. Se.	—	—	†	1, 2, & 3.	5 ,,	1 day.
	23. Mu.	—	—	†	1, 2, & 3.	8 ,,	Temp. still up.
Shorncliffe cases.	24. Ke.	—	†	††	1, 2, & 3.	4 ,,	,,
	25. Pa.	—	†	††	1, 2, & 3.	5 ,,	Last day of fever.
	26. Ed.	—	—	—	1 & 2.	18 ,,	17 days.
	27. Ha.	—	—	†	1 & 2.	19 ,,	12 ,,
	28. Up.	—	†	††	1 & 2.	6 ,,	2 ,,
	29. St.	—	—	†	1, 2, & 3.	3 ,,	Temp. still up.
	30. As.	—	†	††	1, 2, & 3.	3 ,,	,,
	31. Fo.	—	†	††	1, 2, & 3.	5 ,,	,,
Hythe cases.	32. Pa.	—	—	—	1, 2, & 3.	6 ,,	2 days.
	33. McG	—	—	—	1, 2, & 3.	8 ,,	Last day of fever.
	34. Du.	—	—	—	1, 2, & 3.	4 ,,	—
	35. Ea.	—	—	—	1, 2, & 3.	6 ,,	3 days.
	36. Pe.	—	—	—	1, 2, & 3.	6 ,,	Last day of fever.

* Refused to have blood withdrawn.

In most of the cases examined all three antigens were used. In no case were ever less than two used. They were composed of organisms isolated from the following cases.

Antigen 1.—Ha., Up., and Ed.

Antigen 2.—Kn., Ke., Bo., St., Cu., Fa., Ta., Dr., Di., Tr., Ha., Bu., Ne., Ca., Ed., Ha., and Up.

Antigen 3.—Fo., As., Mu., Se., An., Ph., Ly., Bo., Pa., El., and Ke.

After the M.H.D. of the hæmolysin had been determined the antigens to be used were titrated to find out their anticomplementary dose. After much work with normal sera and sera from influenza cases it was found that the best dose of antigen to use was one-quarter of the anticomplementary dose. Any higher dose, say ½ or ¾, of the anticomplementary dose produced an increasing number of false positive reactions amongst the controls. As the amount of fixation of complement was never great, it was essential to use the very utmost of care in the test if a really accurate result was to be obtained.

The patient's serum was used (after inactivation at 55° C. for half an hour) in doses of 0·05 c.cm., 0·1 c.cm., and 0·2 c.cm. A serum control of 0·4 c.cm. was always put up. Fresh sera were used as an old negative sera, though perfectly sterile, occasionally gave positive results.

In the test proper the following tubes were put up:—

Tubes 1, 2, and 3 were concerned with the testing of the varying amounts (0·05 c.cm., 0·1 c.cm., and 0·2 c.cm.) of the unknown serum.

Tube 4 was the serum control (i.e., containing 0·4 c.cm. of patient's serum).

Tube 5 was the antigen control. (Three times the dose of the antigen was used—i.e., three-quarters of the anticomplementary dose).

Tube 6 was the hæmolytic control (i.e., corpuscles + hæmolysin + complement).

Tube 7 was the corpuscle control (i.e., corpuscles + hæmolysin).

Tube 8. A known positive serum.

Tube 9. Serum control of known positive serum.

Tube 10. A known negative serum.

Tube 11. Serum control of known negative serum.

Tube 12. Weak positive serum.

Tube 13. Serum control of weak positive serum.

The latter two tubes I consider most important as they give one a very good idea of the accuracy of the test.

Twenty normal sera were used as controls and all gave negative results except two, viz.:—

(*a*) Faint positive—i.e., — — †. This patient gave a history of influenza a year ago.

(*b*) Moderately strong positive † † ††. This man said he had influenza one month previously.

The control sera were mainly from venereal or suspected venereal cases—e.g., syphilis, gonorrhœa, soft sores, and venereal warts.

The exceptions were as follows: Psoriasis, malaria, tuberculosis, nephritis, and acute otitis media, of each one case.

The results are given in Table VI.

Conclusions.

The results, taken along with the results of the examination of the 20 control sera, are decidedly in favour of the reaction being specific in character.

The cases from the Hythe epidemic—viz., numbers 32, 33, 34, 35, and 36 in the above table—gave negative results. This is another point against *B. influenzæ* being the infective agent in these cases.

Of the other cases which appeared by cultural and agglutination results to be due to *B. influenzæ*, 21 out of 30—i.e., 70 per cent.—gave positive results. It appeared in some cases as early as the third day of the illness.

Of the cases (12) examined during the first week of the illness 91·7 per cent. were positive. Of the cases (7) examined during the second week of the illness 57·1 per cent. were positive. Of the cases (11) examined during the third week of the illness 54·5 per cent. were positive.

This shows that the number of positives is at its greatest during the first week of the illness, rapidly diminishes during the second week, and then slowly continues falling during the third week.

Of the controls, as above mentioned, quite a strong positive was obtained in one man a month after an attack of influenza, and a feeble positive in another case one year after an attack. There appears to be no relationship between the severity of the attack and the amount of complement fixed.

(4) THE MIOSTAGMIN REACTION.

This test is mainly used in the diagnosis of cancer, but has also been used with success in the diagnosis of some bacterial infections—e.g., typhoid, tuberculosis, &c. It was decided to try it in the diagnosis of influenza. As this test is not well known in this country it will perhaps be an advantage to give a more detailed account of the technique than has been given in the case of the agglutination and complement-fixation work.

The reaction is a surface tension phenomenon, the exact mechanism of which is not understood. It depends on the fact, as first noticed by Ascoli, that when an antigen is brought into contact with its corresponding antibody there is a reduction of the surface tension of the fluid containing these. This change is ascertained by means of a dropping pipette of great accuracy. Such an instrument was marketed under the name of a Traube's stalagmometer. I could not obtain the latter instrument, but am indebted to Messrs. Hawksley, London, for the production of a very satisfactory substitute.

A fixed amount, usually 1 c.cm. of the fluid to be tested, is drawn up into the pipette and its drop number ascertained. The antigen is prepared and used in such a dilution that it does not increase the drop number of normal serum beyond one drop for 1 c.cm. The drop number of the stalagmometer I used was just a trifle low (45 per 1 c.cm. of distilled water), but it gave most accurate readings. The stalagmometer was rigidly fixed up in a vertical position (ascertained by use of a plumb line) by means of two burette stands fixed up at right angles to each other and screwed down to a solid bench. The arms of the burette stands grasped the stalagmometer firmly at two points about 2 inches apart, and thus prevented any movement of that instrument in any direction.

A mark was made on the bench where the drop from the stalagmometer should fall, and the apparatus was always tested by this means before use. The maximum error allowed after numerous tests was 0·25 of a drop in 1 c.cm. of distilled water.

All glassware used was scrupulously clean. The tubes were never plugged with cotton-wool as the fibres of the latter interfered with the accuracy of the test. The stalagmometer after use was cleaned out with distilled water, alcohol, and ether. The latter was got rid of by means of a current of hot air.

The most important part of the test was the preparation of a suitable antigen. Three in all were prepared and used.

1. Twelve 48 hours' boiled blood agar plates of *B. influenzæ* were washed off with a total of 25 c.cm. of sterile normal salt solution. This emulsion was covered with toluol, and the whole well shaken for four hours. It was left in the incubator at 37° C. for 48 hours, and then filtered through a Chamberland "F" filter (sterile). This filtrate was used as Antigen 1.

2. This antigen was prepared as above, but the filtrate was extracted with 50 c.cm. of absolute alcohol for half an hour and then centrifuged. The deposit was again extracted with 20 c.cm. of absolute alcohol in a similar manner. The supernatant fluids from both extractions were combined and concentrated to 20 c.cm. by means of a water bath. This was used as Antigen 2.

3. The growth from 48 hours' old cultures of *B. influenzæ* grown at 37° C. on boiled blood agar was scraped off, and dried at 37° C. on glass plates. On scraping off the growth care was taken not to include any of the medium; 0·5 g. of the resulting dried bacilli was ground up in a mortar and extracted with 20 c.cm. of methyl alcohol. This was filtered through a sterile Chamberland filter, and the filtrate was used as Antigen 3.

The three antigens were titrated in varying dilutions—viz., pure, 1 in 5, 1 in 10, 1 in 20, and so on to 1 in 200. The fluid used for dilution was distilled water. A fresh normal serum was used in a dilution of 1 in 20 in normal salt solution to standardise the antigens.

In a series of perfectly clean tubes 9 c.cm. of the diluted serum were mixed with 1 c.cm. of the varying dilutions of the antigen to be tested. A control of 9 c.cm. of the diluted serum and 1 c.cm. of distilled water was put up. The tubes, after having been shaken, were put in the 37° C. incubator for two hours; these were then removed and the drop number of their contents ascertained when under similar temperature and pressure conditions. The antigen used was the strongest dilution which did not increase the drop number for normal serum beyond one drop for 1 c.cm. All the sera were tested in a similar manner. In no case was a positive result obtained—i.e., increase in the drop number.

Conclusions.

The apparatus was thoroughly satisfactory and accurate. The results point to one of two things—

1. That no miostagmin for *B. influenzæ* (Pfeiffer) was present in the sera tested; or—

2. That the antigens were not satisfactory. I have not been able to settle this point, as I have not as yet succeeded in getting an antigen to give a positive result with the serum from an influenza case.

(5) CARRIER QUESTION.

At the request of the Assistant Director of Pathology, Eastern Command, I did sample swabbing of the troops in this area to find out the carrier-rate for *B. influenza*. The results were as given in Table VII.

TABLE VII.

Date of swabbing.	Station.	Unit.	Number swabbed	Percentage.
11/2/20	Shorncliffe.	Hospital patients.	50	8%
13/2/20	Dibgate Camp.	M.G.C.	50	8%
15/2/20	Moore Barracks.	M.G.C.	50	14%
17/2/20	Ross Barracks.	R.F.A.	50	8%
21/2/20	Dover.	R.I.F.	50	14%
25/2/20	Dover.	R.W. Kents.	50	14%
4/3/20	Canterbury.	10th Hussars.	50	18%
4/3/20	Canterbury.	Buffs.	50	18%
13/3/20	Shorncliffe.	Hospital patients.	50	16%
19/3/20	Canterbury.	10th Hussars.	50	6%

This table is interesting when taken along with the occurrence of the epidemics. At the beginning of the Canterbury epidemic amongst the 10th Hussars the carrier rate was 18 per cent. At the end of the epidemic the carrier rate had fallen to 6 per cent.

It appears as far as one can judge from the small number of troops examined that a carrier rate approaching 20 per cent. indicates a danger of an epidemic. The powder, as it were, is there, but what puts the match to it is difficult to find out. One point noticed was that the epidemics at both Dover and Canterbury coincided with a spell of cold wet weather.

Inoculation as a Prophylactic Measure.

Between 700 and 800 were done personally. The reaction in healthy persons was in all cases remarkably mild. If, however, as was done in six cases, the inoculation is made when the person is suffering from an attack of coryza or bronchitis, no matter how slight, the symptoms were always markedly aggravated. In my own case I was suffering from a slight coryza when I gave myself the second dose. This became much worse, and developed into a mild attack of influenza. It was not recognised as such, until after about a week the nasal discharge became of a bright canary-yellow colour.

The colour excited my curiosity, and on culturing on boiled blood agar I got an absolutely pure growth of *B. influenzæ*. Whether I was a carrier or suffering from a slight coryza due to *B. influenzæ* before the inoculation, or whether I caught the infection after the injection (I was working amongst influenza cases at the time), I am unable to say.

Regarding the efficacy of the vaccine I have still an open mind. Influenza returns I disregard on account of the fallacies involved. It may be of interest to note that at Canterbury the 10th Hussars were practically entirely non-inoculated at the time of the epidemic, whilst at Dover the Royal Irish Fusiliers had been practically entirely inoculated quite recently—i.e., within two months. The severity of the attack was to all appearances the same in both units.

If the vaccine be given to a healthy person it certainly does no harm, and as there is a difference of opinion as to whether it does good or not I always recommend it.

(6) FINAL CONCLUSIONS.

From the work done it would appear that one would be quite justified in claiming that the *B. influenzæ* (Pfeiffer) was an infecting agent in all the Dover, Canterbury, and Shorncliffe cases. To go further, one can say that it was likely to have been the primary infecting agent, seeing that specific agglutinins and complement-fixing bodies were demonstrated in the blood of some cases as early as the third day of the illness. The cultural results, as well as a consideration of the fluctuations of the carrier rate, also favour the statement that *B. influenzæ* (Pfeiffer) was the causal organism.

In the Hythe cases *B. influenzæ* (Pfeiffer) does not seem to have been the causal agent, as has been shown both culturally and serologically. I should be chary in accepting the Gram-negative diplococcus, isolated in all the cases, as the causal agent until the cultural results were supported by some immunity test.

The whole work tends to point to the fact that clinical influenza may be due to more than one variety of infecting organism.

TREATMENT OF CHRONIC OTORRHŒA BY ZINC IONISATION.

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OTORRHŒA as a result of middle-ear disease may persist after the acute stage has passed owing to:—

(*a*) Irritation from accumulation of septic fluid in the tympanum proper—tympanic sepsis.

(*b*) Tympanic sepsis complicated by: (1) polypi and granulations, or carious bone in the middle ear; (2) overflow of septic fluid into the tympanum from adjacent parts—e.g., mastoid cells—or from the attic; (3) reinfection from the Eustachian tube or the external auditory canal—here there are temporary cures with frequent relapses.

(*c*) The nature of the infection—e.g., T.B.

When a microscopic examination is made of the discharge from a case of acute suppurative otitis media one variety of micro-organism is seen to be present alone or to greatly preponderate. In the chronic case, on the other hand, there is a mixture of many different organisms. It may be said that in the acute case the ear is "suffering from an infection," whereas in the chronic case the ear is "irritated by a confection." This constitutes what is called above "tympanic sepsis."

If a series of cases be examined and a diagnosis attempted as to the probable cause of chronicity in each it will be found that many may be ascribed to tympanic sepsis alone. This can be confirmed by treatment confined to the tympanum alone. Zinc ionisation is a method by which the tympanum can be disinfected without being irritated. In many cases no other treatment, or no repetition of the treatment, is necessary, and when the patient is seen again—next day, or in a week, or in a fortnight, as circumstances permit—the suppuration has entirely ceased and there is no sign of inflammation, the mucous membrane being pale and clean, and the remains of the drum not swollen or hyperæmic.

If it is observed at the time that the patient is treated that the mucous membrane is much swollen, or that some small granulations are present, it is advisable after ionising to insufflate a little boric acid to absorb any fluid exuded and to endeavour to keep it sterile.

Ninety-nine ears were recently treated. These cases were not selected, except in so far as only those were ionised which might be provisionally considered as owing their chronicity to tympanic sepsis alone. Most of the cases had already received treatment for a longer or shorter time by recognised applications.

The patients were instructed not to use any treatment at home and to be careful not to allow any water to enter the ear. The results may be classified thus:—

(*a*) Ears in which discharge ceased, 54.
Of these 5 relapsed: 2 due to causes undetermined, 1 to adenoids, 1 to cholesteatoma, 1 to Eustachian trouble.

(*b*) Ears of patients who did not return or are still under treatment, 25.

(*c*) Ears in which the discharge did not cease and in which it was discovered after ionisation that—
(1) Small polypi or granulations were present, 9;
(2) Attic disease, complete Eustachian obstruction, or some other complication existed, 8.

(*d*) Additional cases in which recovery may not have been due mainly to ionisation—e.g., to inflation, 3.

Zinc ionisation is useful for diagnostic purposes. If the discharge has not ceased after one treatment it is

usually easy to diagnose what is the reason, as swelling and inflammation have disappeared except at one place, or discharge is localised to one area. Where polypi have been dealt with subsequent ionisation will cure the discharge.

Three of the 54 cases used drops at home, two by mistake for a time, and the third had an incision into the drum where there was a tiny perforation and carbolic acid was applied to the margins; another had, besides ionisation, pure carbolic applied to a granulation. In the remainder treatment was only applied at the time of the patient's visit, and consisted in ionisation, with or without the insufflation of boric acid (or in a few cases of formidine) immediately after ionisation or subsequently if a little discharge was still present. 45 had one ionisation; 7 had two ionisations; 1 had three ionisations; 1 had four ionisations. The zinc ion was used in all. In two the salicyl ion was also used, and in two others the silver.

A few illustrative cases are submitted.

(A) Patient states duration of discharge.
(B) Diagnosed cause of chronicity.

No.	Age.	Ear.	(A)	(B)	Treatment.
5845	21	L	8 years	T.s.	May 13, Zn Ion. 3 M.A., 15 min. ,, 17, No discharge.
AC 750	27	R	2 years	,,	May 18, Zn Ion. 3 M.A., 8 min. Ac. Bor. blown in. ,, 24, No discharge.
5460	15	L	Years	T.s.*	May 13, Zn Ion. 3 M.A., 13 min. ,, 20, Almost dry. Ac. Bor. ,, 27, No discharge.
2365	7	L	6 mths.	T.s.	June 3, Zn Ion 3 M.A., 10 min. Ac. Bor. ,, 17, No discharge. July 1, No discharge.
AC 171	41	R	2½ years	,,	May 11, Zn Ion. 2 M.A., 12 min. ,, 18, A little clear discharge. Ac. Bor. June 1, No discharge. ,, 22, No discharge.
6138	52	R	1½ years	T.s.†	April 22, Pure Ac. Carbol. to polypoid portion of mucous membrane. May 6, Zn Ion. 3 M.A., 10 min. Formidine blown in. ,, 20, Almost perfectly dry. Ac. Bor. July 1, No discharge.
8170	4	R L	12 mths.	?	June 28, Zn Ion. 1½ M.A., 8 min. July 5, No discharge. ,, 5, Zn Ion. 1½ M.A., 5 min. ,, 12, No discharge either ear.
7515	24	R	1 year.	T.s.‡	July 5, Zn Ion. 3 M.A., 14 min. ,, 12, No discharge.
2392	33	R	More than 4 yrs.	T. s.	March 11, Salicyl. Ion. 2 M.A., 10 min. Zn Ion. 2 M.A., 10 min. ,, 18, No discharge. April 15, No discharge.
7024	31	R	2 mths.	,,	June 24, Zn Ion. 3 M.A., 10 min. July 1, No discharge.
6278	26	R	15 years	T.s.‖	May 10, Zn Ion. 3 M.A., 10 min. ,, 13, Nearly clear mucus, in moderate amount. Ac. Bor. blown in. ,, 17, No discharge. ,, 20, Slight discharge. Meatus still inflamed. Zn Ion. 3 M.A., 15 min. ,, 31, Some mucoid discharge. Meatus much less inflamed. Granulation posteriorly. Ac. Bor. blown in. June 3, Zn Ion. 2 M.A., 10 min. Ac. Bor. ,, 7, A little mucus. Ac. Bor. ,, 10, Almost dry. Ac. Bor. ,, 14, No discharge noticed. Ac. Bor. ,, 17, 21, 24, 28, No discharge. July 1, 5, 12, No discharge.

T.s., tympanic sepsis. * Pockets due to adherent drum. † With polypoid condition of mucous membrane on inner wall. ‡ ? aditus. ‖ ? attic, meatus inflamed.

All the visits and treatment from the time ionisation was given till the discharge ceased are mentioned.

It is not yet possible to estimate exactly what is the proportion of patients suffering from chronic otorrhœa attending the special department of a general hospital in which it may be expected that cure will rapidly follow ionisation. I know it is large.

In conclusion, I wish to express my best thanks to Mr. Gay French, of the Royal Free Hospital, and to Sir James Dundas Grant of the Aural Clinic, Ministry of Pensions, for the facilities which they have freely granted me to treat patients. I am greatly indebted to them.

SOME OBSERVATIONS ON THE TREATMENT OF GONORRHŒA WITH DETOXICATED VACCINE.

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IN the following series of cases the clinical work and treatment has been carried out by W. V. C. and the preparation of the vaccine and the performance of the complement-deviation tests by T. E. O. The vaccine was prepared according to the method described by Captain D. Thomson, R.A.M.C., in THE LANCET of June 28th, 1919, and the complement-deviation tests performed on the lines laid down in the Medical Research Committee's Special Report Series, No. 19.

At the outset we decided that it would be of interest to take a series of cases and treat them with detoxicated vaccine in order to judge its effect upon them both "clinically" and serologically. At the same time a series of "controls" was commenced, these cases receiving no vaccine. The cases will be referred to as "test" and "control" cases respectively, and the abbreviation C.D.T. will be employed for "complement-deviation test."

Method.

With this end in view all cases which were admitted to the hospital suffering with acute gonorrhœa, and in whose urethral smears gonococci were present, were placed in one or the other series. All cases were submitted to treatment on the same general lines—i.e., irrigation of the anterior and posterior urethra with pot. permang. 1/12,000, increasing gradually to 1/4000 as the acute symptoms subsided. General treatment comprised a milk diet for the first four days, a minimum amount of exercise throughout, while medicinally alkaline mixtures, mist. alb., and belladonna suppositories were employed. Smears were taken on an average once a week, and urines were examined twice weekly.

Tests of Cure.

1. "Dry" after a "hospital pass" granted for three days a week from 2 to 7.30 P.M.
2. Passage of straight sounds.
3. Examination of first and second urines, and urine after prostatic massage, both macro- and micro-scopically.
4. Observation of the patient for an average of 28 days after he showed no further urethral discharge, during which period he was doing fatigues and physical training (half an hour twice daily).

Special Treatment.

The 123 "test" cases received detoxicated vaccine commencing on the day of admission. The first 18 of these "test" cases received a total of 40,000 millions spread over a period of 30 days, but for reasons to be stated later this was given up and the remaining 105 received a total of 60,000 millions given as follows:—

	Dosage.		Dosage.
1st day	5,000 millions	20th day	10,000 millions
5th ,, ...	5,000 ,,	25th ,, ...	10,000 ,,
10th ,, ...	7,500 ,,	30th ,, ...	15,000 ,,
15th ,, ...	7,500 ,,		

The vaccine was given subcutaneously alternately into either arm. The 64 "control" cases received no vaccine.

Results.

Table I. shows the results obtained, and Table II. is an analysis of the "test" cases.

TABLE I.

(A) Average duration of disease in days before commencement of treatment.
(B) Average number of days to disappearance of discharge (includes relapses and duration of relapses, if any).
(C) Number of cases developing complications.

Class of case.	Total No. of cases.	(A)	(B)	(C)	Per cent.	Relapses.	Per cent.
Test	123	4·2	38·5	6	4·9	11	8·9
Control...	64	3·5	48·4	10	15·6	3	4·7

TABLE II.
(A), (B), (C) as in Table I.

Test cases.	Total No. of cases.	(A)	(B)	(C)	Per cent.	Relapses.	Per cent.
Uncomplicated	93	2·9	41·3	6	6·5	10	10·8
Admitted with complications.	17	10·9	35·6	—	—	—	—
Admitted as "relapses."	13	5·5	22·0	—	—	1	7·7

It will be seen that the average duration of the disease including relapses of cases treated with "detoxicated" vaccine (test cases) is 38·5 days, as compared with 48·4 days for cases receiving no vaccine (control cases), but otherwise under identical conditions.

As regards *complications*, of 93 "test" cases 6 developed complications (5 epididymitis and 1 arthritis) = 6·5 per cent., whereas of the 64 control cases 10 developed complications = 15·6 per cent. On the other hand, of the 123 test cases 11 relapsed = 8·9 per cent. against 3 relapses = 4·7 per cent. of the 64 controls.

We should like to point out, however, that of the 123 test cases the first 18 were treated with only a total of 40,000 millions detoxicated vaccine (initial dose 2500 millions), and these 18 cases were responsible for 4 relapses. (It was for this reason that the remainder received the larger doses of detoxicated vaccine.) Another point worthy of note is that in calculating the days of duration of the disease the period of relapses is included; this therefore increases the significance of the shortened period of the disease.

It was noted by one of us (W. V. C.) that "test" cases admitted with or developing complications during treatment ran a milder course than those not treated with detoxicated vaccine. Only 1 case of the 123 cases showed any marked local reaction, and no uncomplicated case showed any local or general reaction. Complicated cases varied in the intensity of the reaction, two cases of arthritis complained of slight transient increase of pain in the joints, one epididymitis case complained of great pain in the testicle and his temperature went up to 103° F., other epididymitis cases complained of a varying amount of increase in pain in the testicle; in none of these cases was the vaccine treatment stopped, and in all cases good progress was made; in every case where any reaction occurred it did so within 24 hours. A large majority of these cases showed a very marked improvement in the urethral discharge between the fourth and fifth dose of vaccine, and some cases became "dry" at this period in an almost dramatic fashion.

Complement-deviation tests were performed (by T. E. O.) within seven days of the completion of the vaccine course on 121 of the 123 test cases, with the following results:—

Total cases 121 { C.D.T. 64 showed a negative result. / „ 57 „ positive „

In 20 of these cases C.D.T.'s were done before the first, after the fourth, and after the seventh dose of vaccine. This showed:—

At start	After 4th vaccine	After 7th vaccine
20 neg. / Nil pos.	8 neg. / 12 pos.	8 neg. / 12 pos.

The reason for doing a C.D.T. after the fourth vaccine was to ascertain whether there was any relationship between the clinical improvement at this period and the fixation of the complement. Of 25 control cases in which the test was done 17 showed a negative and 8 a positive result at the time of presumptive cure.

A further analysis of 121 "test" cases showed that in the 64 cases in which the result was negative at the end of treatment the average duration of the disease was 38·9 days, and in the 57 cases in which the result was positive at the end of treatment the average duration of the disease was 38·7 days.

Conclusion.

In conclusion, we would like to state that we realise that the number of cases taken is too small for any really reliable deduction as to the value of detoxicated vaccine to be drawn, still in view of the fact that cases have been taken serially and not picked, and that test cases and controls were treated on exactly parallel lines, and that all were submitted to a long period of observation, it is noteworthy that the average duration of the disease in test cases was 38·5 days as compared with 48·4 days of controls—a decrease of nearly 10 days per case.

All through the period of the tests, which has extended over a year, we have tried to keep a perfectly open mind, and no calculations contained herein were made until the series was closed. Our thanks are due to Major C. F. White, O.B.E., R.A.M.C. O/C, Military Hospital, Rochester-row, S.W., for permitting us to make this investigation and allowing us to publish the results.

HERPES AND CHICKEN-POX.

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A CONSIDERABLE amount of interest has been taken recently in the question of the alleged relationship of herpes and chicken-pox. Although at first sight it may appear extremely improbable that there is in reality any connexion between two conditions which we have been accustomed to regard as entirely separate entities, and which in the vast majority of instances present only very superficial resemblances, a study of recent literature will, I think, compel an unprejudiced reader to regard the question as one which deserves serious discussion. A few years ago I was quite content to assume that the interesting occurrences from time to time reported in the journals could be readily explained by coincidence. The coincidences, however, are getting sufficiently numerous to be somewhat puzzling; and a brief review of the whole subject may be not without interest.

Bokay,[1] in 1892, reported that he had seen nine cases in which chicken-pox appeared from eight to 20 days after an attack of herpes zoster had affected another person in the same family or hospital ward, and when the possibility of the chicken-pox having arisen from any other source apparently could be excluded. More recently numerous similar occurrences have been described by other observers, and Le Feuvre[2] in particular has stoutly maintained the theory of the identity of the two conditions, and has made an interesting collection of cases gathered from the literature.

Before discussing, however, the cases which have been reported up to date it may be well to consider whether by any possibility errors of diagnosis may account in some degree for the now acknowledged frequency with which one of these diseases follows the other. Are there, in the first place, abnormalities in the distribution of the eruption of chicken-pox which might tend to a diagnosis of herpes being arrived at; and secondly, can the herpetic eruption assume such a character that chicken-pox might reasonably be suspected? Both these questions can, I am inclined to think, be answered in the affirmative.

Abnormal Distributions of the Chicken-pox Eruption.

It is, of course, well known that in small-pox a concentration of the eruption may be determined by local pressure or irritation on any part of the body, and sometimes in areas where, under ordinary conditions, the pocks may confidently be expected to be sparsely scattered. Good examples of such concentrations are not infrequently observed after the application of a mustard leaf during the initial fever, and at the site of the collar stud, the bootlace, or the garter. It is, perhaps, not so well appreciated that the eruption of chicken-pox may be influenced in its distribution by similar causes, although the normal distribution in this disease is such that we would not naturally expect such abnormalities to occur nearly so frequently as in such a fever as small-pox, in which the distribution appears to be determined almost entirely by the comparative amount of exposure, friction, and irritation of the

different areas of the skin. Hamburger[3] has suggested that some of the alleged cases of herpes zoster, which have been followed by chicken-pox, may have been in reality cases of chicken-pox itself with the eruption determined in its distribution by such a cause as the pressure and friction of badly fitting corsets. We see occasionally infants whose eruption is particularly profuse in the region covered by the napkin as the result of irritation by the excretions. I have had under my care a boy whose clavicle was fractured during the incubation period of chicken-pox, and who presented on the shoulder, arm, and chest on the affected side a spotting at least three or four times more profuse than on the other parts of the body, this distribution being due to the bandages. Another recent case, a young lady, who had very typical discrete chicken-pox lesions on the trunk, showed on the face such a copious and closely set eruption that she gave quite the impression of small-pox, especially as the brow and prominences of the face were much more affected than the less salient parts. This was easily explained by the fact that she had just returned from a week-end in the country, where she had spent her time sitting in the sun, and the irritation of the sunburn had determined the localisation of her eruptions. Similar cases have been reported by Gautier[4] as occurring in children who were being treated by heliotherapy. Another patient of my own who developed his chicken-pox only four days after an intense scarlet fever rash had an unusually profuse eruption on the trunk and extremities, and yet had only two or three vesicles on the face. This suggested that, had not the fever occurred during the incubation period, he would probably have had a very scanty eruption, whereas the skin hyperæmia caused it to be very copious on the trunk and limbs, while the face, spared by the scarlet fever rash, presented, as it were, more resistance. It is noteworthy that in this patient the forearms were affected quite as much as the trunk, not a very usual occurrence in varicella.

I cannot say, however, that in any of these cases was the eruption grouped in a herpetic manner. It is nevertheless conceivable that cases might occur in which a concentration, determined by some unrecognised form of irritation, might suggest herpes to a not very careful observer. I do not lay stress on the probability of this, but its possibility is, none the less, worth noting. I have, on the other hand, seen two cases of undoubted chicken-pox in which the eruption, at first indistinguishable from herpes, became afterwards generally distributed over the body. As will be seen below, it might be possible to consider these cases as the concurrence of chicken-pox and herpes in the same individual, and Dr. Le Feuvre has, in a letter to myself, already claimed them as such. I am far from saying that he is not right, but in the meantime I prefer to put them on record merely as illustrating a possible anomaly in a chicken-pox eruption.

CASE 1.—A small girl developed what appeared to be an absolutely typical herpetic patch over the left shoulder-blade. Next day, however, a few outlying vesicles, one apparently typical of varicella, appeared in the neighbourhood of the patch, and one or two more on the right side of the back. There was nothing at any time below the waist-line and nothing on the face, scalp, or limbs. I sent her to a chicken-pox ward where she did not contract the disease, and, 17 days after her removal, one of the children who had been exposed to her developed chicken-pox.

CASE 2.—Another little girl, a few days after admission with diphtheria, developed an unusually copious herpetic eruption. The distribution on the first day was entirely limited to the area supplied by the posterior divisions of the dorsal spinal nerves, but was equally well marked on both sides along the spine. Next day there was one spot on the face, and herpetic groups above both elbows, limited apparently to the supply of the upper division of the external cutaneous branch of the musculo-spiral nerve. On the succeeding days, however, other vesicles much more typical of chicken-pox appeared on the flanks, chest, and abdomen, and two other children in her own home were reported as having developed ordinary chicken-pox on the day of her attack.

Generalisation of the Eruption of Herpes Zoster.

We must here assume that it is possible for herpes zoster to become "generalised"—that is to say, to develop outlying vesicles which may be distributed over the whole body. There is much to be said against such an assumption, particularly on anatomical grounds, but it is in any case necessary to refer to the cases which have been described under this name, whether we ultimately decide to regard them as instances of herpes, of concurrent chicken-pox and herpes, or of chicken-pox alone. Parkes Weber[5] has reported two interesting examples of this condition (one of which, it may be mentioned, was followed by chicken-pox in another individual), and has gathered from the literature some 20 references to it. He quotes, in particular, Minet and Leclercq,[6] who collected 25 cases of generalised herpes and who state that the aberrant vesicles may appear simultaneously with the outbreak of the typical zoster or may develop from a few hours to a few days after it. The latter was the case with Parkes Weber's patients, in whom the generalised eruption did not manifest itself for five days after the zoster in one instance and at the end of the first week in the other. In these cases of so-called generalised herpes we find the aberrant vesicles described as resembling closely those of varicella. They seem to be less deeply seated than those of ordinary herpes, and than those of the original patches with which they seem to be connected, and heal more quickly and with less cicatrisation. In one of Le Feuvre's papers[7] an account of nine cases collected from the literature is given, and there seems to be no doubt in his mind that the condition is one of herpes and chicken-pox combined, and depends upon an identical virus. If he is right, the two cases which I have reported above appear to be of the same nature. In both the chicken-pox was undoubted, and in both it followed within two days a condition originally diagnosed as herpes. I have seen, however, another case in which a definite diagnosis of chicken-pox could not be made, and which appears to conform more closely to what has been described as generalised herpes.

CASE 3.—A male of 55 years was sent into hospital as suspected small-pox. He reported that five days previously he had suffered from shivering and pain in the lower part of the back. He had also had some fever up to the time of admission. On examination I found a few dry vesicular lesions on the scalp and one or two on the face. There were several on the trunk, of which one or two were well filled and somewhat varicella-like in appearance, while others were dry and crusted. In particular, there was one very suggestive oval crust on the right shoulder-blade. Only one vesicle was observed below the elbows, and the legs were free of any spotting. Round the anus on the left side was a profuse eruption of typical herpes with some outlying vesicles, which were identical in appearance with one or two noticed in the sacral region. On the following day fresh herpetic groups were apparently struggling to come out on the inside of the upper part of the left thigh, and a small herpetic patch was observed on the left side of the scrotum.

If we are to regard this case as one of generalised herpes it may be noted that the eruptions, whether herpetic or varicella-like, appeared probably simultaneously. The pain in the back which caused the suspicion of small-pox was undoubtedly due to the fact that the sacral nerves were those chiefly affected by the herpes. I am far from convinced that the scattered vesicles and crusts were actually those of chicken-pox. There was no history that the patient had previously suffered from that infection, but he could not state with any certainty that he had not had it.

Association of Chicken-pox with Herpes.

Le Feuvre, who has done much to stimulate interest in this question, was able in 1917 to collect 50 examples of herpes preceding, following, or coexisting with chicken-pox. Since that date several other instances of this curious association have been from time to time reported.

A. *Cases of herpes zoster followed by chicken-pox.*—It is into this group that most of the cases reported in the literature fall. A case of shingles occurs, and after an interval, approximating to the ordinary limits of the incubation period of chicken-pox, a contact, usually a member of the same family, develops varicella. Out of Le Feuvre's 50 cases no less than 41 are of this type, and seven of these were observed by himself. In a paper of a later date he has added two more. In every instance the interval elapsing before the appearance of the chicken-pox fell between the limits of 12 to 21 days. To the papers of Le Feuvre and to that of Parkes Weber full lists of references to the literature are appended, and I will content myself here with the mention of more recent observations.

Cranston Low[8] has reported two cases, Taylor[9] four, and Charpentier,[10] Dingwall Fordyce,[11] and C. Wilson[12] one each.

I take this opportunity of putting on record four cases of my own.

CASE 4.—On Dec. 23rd, 1918, a child suffering from whooping-cough developed a typical herpes zoster with no outlying vesicles. On Jan. 7th a child in the same ward was discharged from hospital and developed chicken-pox within a week of her return home. The date on which the first vesicle appeared was not ascertained, but it was quite clear that the onset of the eruption was within 21 days of the appearance of the herpes in the other patient. A few presumably unprotected children, however, who remained in the same ward escaped infection.

CASE 5.—A girl of 8, suffering from scarlet fever, developed a typical herpes zoster on Sept. 23rd, 1919. On Oct. 11th, 18 days later, two children, aged 5 and 6 years, whose beds adjoined that of the herpes patient, presented a characteristic chicken-pox eruption, and on the following day a third child, aged 9, who occupied the bed exactly opposite, also developed chicken-pox.

CASE 6.—In the same year, 1919, a scarlet fever patient in another ward had a typical attack of herpes zoster. This was followed 25 days later by an outbreak of chicken-pox affecting several children. As the herpes case was not removed from the ward, this long interval does not exclude a possible incubation period, as, if the infection was really derived from the herpes, it need not necessarily have been contracted during the first three or four days of that condition.

CASE 7.—In 1918 a child was admitted with chicken-pox from Dr. J. S. Fowler's wards in the Royal Hospital for Sick Children. There had been no obvious source of infection, but a case of herpes zoster had occurred in the ward 19 days previously.

It must be understood that in all these cases any more natural source of infection was, so far as possible, excluded. As regards two of my own, in particular, it may be noted that they occurred in convalescent scarlet fever wards. Now, with a view of keeping these wards quite free from secondary infections, no patient is transferred to them before he has been at least three weeks in hospital and has therefore terminated the period during which any infection contracted before admission is likely to develop. As a result, with the exception of post scarlatinal diphtheria which is due to undetected carriers, it is most unusual for secondary infections to occur in convalescent wards, and it is remarkable that, on two of the rare occasions on which chicken-pox has made its appearance there, herpes should have preceded it. Nevertheless we cannot entirely exclude the possibility of "missed" cases of chicken-pox having been responsible for infection in these cases, or, indeed, in the other cases, reported in the literature.

The cases in this group, including those of Le Feuvre, those quoted above, and my own additions, amount to 56 in all. No doubt there are others in the literature which I have missed.

B. *Cases of chicken-pox followed by herpes.*—It appears to be much more unusual for herpes to follow chicken-pox within the limits of a possible incubation period, but none the less such cases have been reported. Le Feuvre collected five in his original series, and in a later communication added one more. I am unable to make any addition to this number, neither having had such an experience myself nor having been able to find in the literature since 1917 accounts of similar occurrences. The number of them, indeed, appears to be so small that the theory of coincidence does not, so far as this particular group of cases is concerned, seem to present any difficulty.

C. *Cases of herpes and chicken-pox in the same individual at the same time.*—It has been mentioned above that the two cases (Cases 1 and 2), which I have preferred to describe as examples of chicken-pox starting with a herpetic distribution, might be regarded as instances of this combination, and it will be admitted that generalised herpes may account for some of the cases reported, especially if they are not followed, as was one of Parkes Weber's, by an outbreak of chicken-pox after a suitable interval. Thus the rash, "indistinguishable from varicella," which appeared a week after the onset of characteristic dorsal and lumbar herpes, recently described by Downes,[13] might well have been generalised herpes, and, as the children of the family had never had chicken-pox and did not contract it, this presumption is to some extent strengthened. Le Feuvre includes 4 cases in his series of 50 which he is satisfied were in reality instances of herpes followed in the same individual by chicken-pox within a few days—that is, two days to a week. I have not noticed any others in the recent literature. Dr. D. W. Scotland, of Colinton, has told me that one of his patients, a lady of 50 years, developed a severe attack of chicken-pox a fortnight after the onset of lumbar herpes. The interval here is much longer than has been usually noticed, and we can hardly explain such a case either on the theory of a generalised herpes or of a chicken-pox with an originally herpetic distribution. Although no source of infection was detected and the coincidence is a very curious one, it seems not improbable that there was no real connexion between the two attacks.

D. *Cases of chicken-pox and herpes appearing simultaneously in different individuals.*—Cranston Low[8] reports that a patient in a ward of the Edinburgh Royal Infirmary developed a typical right-sided thoracic herpes zoster. Two days later a child in the same ward developed chicken-pox. Both these patients had been in hospital several weeks, and it is suggested that the infection had been introduced by visitors. Oakes[14] in 1913 reported that he saw two children in one household on the same day, one with typical shingles, the other with typical chicken-pox. Gray[15] has put on record a similar occurrence. Three brothers were admitted to hospital with scarlet fever. The eldest, who had no previous history of chicken-pox, had well-marked right-sided herpes zoster, and had one or two spots on the left side of the chest which, on healing, left scars suggestive of chicken-pox. Four days later one of the brothers developed chicken-pox, which the younger child took from him after the usual incubation. Unfortunately it is not stated whether the herpes had been long present before admission or had only just appeared, but if the latter, the case appears to fall into this group.

Epidemic herpes.—It is interesting to note that, in addition to the curious association of the two conditions as exemplified above, there is some evidence that herpes occasionally appears in what might be described as an epidemic form; that it is unusually prevalent, for instance, in a particular place at a particular time. This, of course, might mean nothing more than that it is influenced by climatic conditions, of which as yet we know nothing. Further, it has been reported as being epidemic along with an epidemic of chicken-pox. Heim[16] has recorded such an occurrence in 1912 at Budapest.

Theory of the Identity of the Virus.

It is on such facts as have been collected above that some observers have come to the conclusion that the virus of herpes and chicken-pox is one and the same. This view is strongly held, both by Le Feuvre and Cranston Low. The latter has advanced the ingenious theory that in herpes the infection is local, through the nose and along the lymphatics round the olfactory nerves, as has been shown to be the case in anterior poliomyelitis, whereas in chicken-pox there is a blood infection with the virus. In the combined cases it is presumed that the infective agent reaches the spinal ganglia first, and a few days later invades the general circulation.

Difficulties in accepting the identity theory.—Admitting that it is not easy, in the light of the above facts, to exclude absolutely the possibility of a real relationship between the two conditions, much yet remains to be explained. The question of immunity, for instance, requires careful consideration. Many patients who suffer from herpes have undoubtedly had chicken-pox previously, and there is no reason to believe that herpes confers any protection against chicken-pox. For example, Savill[17] mentions an instance of a boy developing herpes five months after an attack of chicken-pox, and Dr. Scotland's case, mentioned above, shows that chicken-pox can follow closely upon herpes. Are we to assume that the general blood infection is not sufficient to make the individual immune to the local nerve infection and vice versa? Moreover, herpes does not protect against itself, second attacks being known to occur. J. Taylor[9] has recently reported instances of such second attacks. Cranston Low doubts if such recurrences are genuine herpes, and attributes them

to the irritation of recurrent attacks of peripheral neuritis, but, after all, as second attacks appear to be rare, the mere fact of their existence is no real argument against the infectivity of herpes, as they occur occasionally in all the infectious diseases. But, from another point of view, herpes does not behave as if it depended on a living virus. The frequency with which it has been reported to appear during a course of treatment with arsenic is very difficult to explain on any theory of infection. Le Feuvre seems inclined to brush this difficulty aside and seriously to consider the possibility of an infectious disease arising *de novo* under suitable conditions, a line of argument in which I am not prepared to follow him. Otherwise it must be assumed that arsenic renders the individual especially susceptible to infection, and that the possibilities of such infection are much more frequent than can easily be imagined.

Discussion.

Looking at the subject as a whole it seems not unfair to conclude that the small number of cases in the second group—that is to say, chicken-pox followed by herpes—may readily be explained by coincidence. Further instances of this sequence certainly should be reported before we can lay much stress on it. Secondly, the cases in the third group, that of the two conditions co-existing, may be accounted for either by chicken-pox starting for some unknown reason with a herpetic distribution, or by the phenomenon known as "generalised herpes." Some, it is true, may question the possibility of herpes becoming generalised, though, if we grant that herpes depends upon a virus, there is no particular reason why that virus should not occasionally be diffused through the nervous system much as that of anterior poliomyelitis appears to be in certain instances. On the other hand, the two conditions may coexist in this group of cases quite fortuitously, though the regularity with which, in the cases reported, the general eruption has followed the local one within a week, suggests that there is a definite connexion between the two. The fourth group, again, simultaneous attacks of herpes and chicken-pox in different individuals, might well, from the small number of cases recorded up to date, depend upon coincidence. So far, then, as these three groups are concerned, the case in favour of an identical virus does not appear to be a strong one, though they assume an undoubted significance as long as the occurrences in the first group remain unexplained.

It is, in fact, the first group for which it is difficult to supply an adequate explanation. A large number of instances have been reported in which chicken-pox has followed herpes in another individual, and always within the limits of the incubation period of the former disease. If chicken-pox appeared as commonly two months after herpes as it does within three or four weeks, I cannot doubt that that fact would have been put on record, and it is this occurrence of an apparent incubation period which compels most attention and which cannot be put lightly aside. We probably all have a prejudice in favour of keeping what we consider different diseases in watertight compartments, as it were, but, after all, we know singularly little about them, and it is quite possible that the same virus may behave quite differently under different conditions. As it is, the fundamental identity of diseases as different in their symptomatology as influenza, anterior poliomyelitis, encephalitis lethargica, and cerebro-spinal fever has been seriously suggested and discussed, and although I am far from accepting such a view, particularly as regards cerebro-spinal fever, it is obvious that the same poison acting on different structures might be expected to cause different symptoms.

The key to the mystery lies, I am convinced, in the hands of the general practitioner. All cases in which any association of the two diseases is noticed should be carefully noted and put on record. What I think is equally important is to keep a note of all cases of herpes which, occurring in a family where there are susceptible children, are *not* followed by chicken-pox. For instance, in the last four years seven cases of herpes zoster have occurred in the Edinburgh City Hospital in wards in which there were one or more children who had not previously suffered from chicken-pox. Three of these cases have been followed by outbreaks of chicken-pox otherwise unexplained. It must again be repeated that the possibility of a missed case of chicken-pox being the real cause can never be entirely excluded, especially when one remembers that the whole eruption of that disease may be represented by one spot and in consequence very easily overlooked. A series of similar observations, however, would give us some idea what percentage of cases of herpes are followed by chicken-pox, and should such a percentage be found to be considerable the relationship between the two conditions might be more reasonably accepted. The proportions, moreover, of herpes patients who have or have not previously suffered from chicken-pox would be an interesting addition to our knowledge. Attention might also be given to the question of second attacks of herpes and to the dates on which herpes occurred in the practices of the observer and his neighbours with a view to investigating epidemicity. All that is required is a certain number of practitioners—say one hundred—willing to note such facts for a period of three or four years. Still more light would be thrown on the subject if a few medical officers of health would persuade their local authorities to follow the example of Bulawayo, which, no doubt at the instance of Dr. Le Feuvre, has made both "shingles" and "chicken-pox" notifiable diseases. But until a considerable mass of information can be obtained we must, I fear, leave the question an open one, recognising at the same time that such information is necessary before we can, with any justice, absolutely repudiate the theory of identity.

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THE ANALYSIS OF A FUGUE.

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THE following case may be of sufficient interest to warrant publication, inasmuch as the events which led to the final dissociation reveal themselves in well-ordered sequence.

X.Y.Z., aged 43, single, joiner, a native of East Anglia, who had lived in Manchester for some eight years, was admitted to this hospital on June 9th, 1920, with a history of having unaccountably left his home in Manchester on the previous Whit Sunday morning, May 23rd. His friends heard nothing of him till Thursday, May 27th, when the police reported that he was in a certain workhouse infirmary some miles from his home. He had been picked up in an exhausted condition the previous (Wednesday) midnight unable to give an account of himself and was taken to the infirmary. There he could not give his name, address, or occupation, and his mind was an absolute blank for all events in his past life prior to the previous Tuesday morning (May 25th), when he woke up to find himself in a strange park, except that he spontaneously recalled air raids in France. Other events of his army life were as completely forgotten as his civilian career.

A tram ticket from Liverpool to St. Helens which was found on him aroused no associations, and he was eventually identified as the result of a telegram sent from St. Helens on Whit Monday to his fiancée, telling her not to worry, that his head was bad, and that he would soon be home. This enabled the police to trace him.

Apart from the memory of air raids, the only link with his past which was revived in the infirmary was due to the policeman who took him there. This officer, himself from the Eastern Counties, recognised the patient's accent, and this aroused some nebulous associations in the latter's

mind, but not sufficient to enable him to say where his old home had been. On Saturday, May 29th, his fiancée, accompanied by a friend well known to him, arrived at the infirmary to take him back to Manchester. He did not recognise either of them, and Manchester, including the house and friends with whom he had lived for years, was entirely new to him. He astonished his landlord by asking where he could wash, receiving a reply more curt than courteous. Similarly a friend from his old home, who arrived a few days later in response to a telegram, was unrecognised, though a photo of the latter's young daughter aroused some unsystematised associations. The same photo portrayed the patient's nephew, whom he had seen as recently as last year, but he did not recognise the boy at all.

Condition on Admission to Hospital.

Z. continued in this condition until his admission here on June 9th. He was taken to a medical board on June 3rd, passing streets formerly familiar but now entirely strange to him: at the board the note was made, "Remembers bombing at Etaples and very little else." He accepted the statements of his friends as to former occurrences, his engagement, &c. (his fiancée obviously resembling a photo which he had in his possession), so that he was able to give an incomplete account of much of his past life. This knowledge, however, was not a recall of past impressions, but was, to him, new matter which he had learnt since his return to Manchester on May 29th.

The events narrated lacked the tang of reality for him, and he was still quite ignorant of the occurrences which had transpired unknown to his friends; for example, the happenings of Whit Sunday and Monday. His fiancée told him that on the Saturday preceding Whit Sunday he had been to B——l with her in the afternoon; he could not recall this, even after being told about it. Similarly, his joiner's shop was examined by his friends, and a bag of valuable tools, which he was accustomed to take out with him when working, was missing; he did not know of the existence of his shop and still less where the tools were. Again his friends told him that on the Whit Sunday morning he was going to fetch a new suit of clothes from his tailor's private residence. He had no idea of the tailor's name or address, or that he was getting a new suit at all. (It subsequently transpired that it was a newly opened shop where Z. had never dealt before, and his friends did not know of it.) A more serious matter was that he had securities deposited somewhere representing a large sum of money; he had no recollection of owning the securities or of where they were. His fiancée knew of them, but he had never told her where they were deposited.

As opposed to the amnesia for his past life, including the first two days of the fugue, his memory for events since he woke up in the park on Whit Tuesday morning, May 25th, was perfect, but it was a new existence sharply and absolutely demarcated from the former one. To recapitulate, therefore, apart from memories of bombing, he had amnesia for practically everything up to the morning of May 25th, except what he had re-learnt about himself during his stay in Manchester between his return on May 29th and his admission here on June 9th, while he remembered everything that had transpired since May 25th, but could not link up these later events with anything that had happened previously.

It was at once evident that this was a perfectly genuine case and not the aftermath of a Whitsun spree. Z. was a most respectable and well-conducted man, a lifelong abstainer, whose previous career could be vouched for by responsible witnesses. It may also be stated that subsequent hypnosis confirmed that he had drunk nothing stronger than minerals during his wanderings. The past history was incomplete at this stage and will be considered later, but an arresting fact came to light at the first interview. On Whit Sunday, 1918, a fine and hot day, he had been through a severe air raid at Etaples, subsequently being taken for safety to a wood near a railway some kilos away, and on an equally fine and hot Whit Sunday two years later he had wandered from his home, "waking up" two days later by a railway bridge in a wooded park in Lancashire.

Hypnosis of Patient.

Owing to unavoidable circumstances it was not possible to give Z. much attention for a few days, and as, curiously enough, the sergeant who had drilled him as a recruit in 1917 happened to occupy the next bed—though Z. did not at first recognise him—the two men were sent about together to endeavour to recover the lost memories. This succeeded to a limited extent, but the revived memories were confined to the period of their training together at Scarborough, and were probably, to some extent at least, "suggested" by the sergeant. As soon as opportunity offered, therefore (June 21st), I decided to hypnotise the patient. The commencement of the amnesia was vague and affected occurrences of years ago, so the first hypnosis was primarily devoted to recalling the events of the Whit Sunday and Monday. Z. readily passed into deep hypnosis, and most of the dissociated memories of the fugue were recovered. In places the story was sketchy, and the suggestion was given[1] that he would afterwards dream of the events he had spoken of during hypnosis, that any gaps would be filled up, and that after the dream he would remember them all as having actually occurred in real life, and would write them out on waking. This he did, and next day brought the following account of his journeyings:—

The Patient's Story.

"I remember on Whit Sunday morning having a nasty headache and a feeling I must get right away. It was a very hot day. I remember getting on a car and going to Stockport; from there to H—— G——, calling at a small shop for some sandwiches and biscuits. The people were just coming out of church. I then walked through some fields by this church to some woods near B——l, where I remained nearly all the day. I remember the sun being very hot, and my head still aching, with a desire to still wander on. I remember at the time I bought the biscuits, &c., I changed a ten-shilling note, and left in a wallet eight pounds. While in the wood I also remember coming out and going to a small house on the road and having some tea and bread-and-butter, which would be, I think, about 7 or 8. I then had a feeling I ought to be going home, but could not remember where I wanted to go, so kept on walking and wandering about till midnight, when I had a sleep in a barn, somewhere, I think, near A——m; it was a beautiful moonlight night when I awoke. I still went walking on across country till I came to a place called M—— G——, and then into S——n, where I met some colliers going to work, which I think would be about 5 o'clock. I remember telling them I wanted to get to some big town, but I could not remember the name. They told me how to get to Liverpool by car, as I told them it was a long way I wanted to get to. I got on a car to Ath——n, where we had to change again. I remember getting off the car and seeing some children dressed in white. It came to my mind all of a sudden then; I had promised to go with my young lady to watch the procession at Manchester. I was then close to a small house where they sold mineral waters, teas, &c. There were two cycle motorists came up at the time. I can remember tearing a piece of paper out of the wallet I had and asked them if they would take a telegram to the nearest post-office for me as I was not feeling well. I remember giving them this and a shilling; they said they were going to St. Helens. I then went in a field close to and ate some sandwiches I had left and went to sleep, as I felt so tired. When I awoke my head was much worse; I did not remember anything about sending the telegram. I was still anxious to get to Liverpool. I got on a car to A——n, and from there to St. Helens, went into a refreshment-room and had a good breakfast, then got on a car to Knotty Ash, where we had to change again for Liverpool. Before resuming the journey I went in a small wood close to and lay down for a while, and then went on a car again which had on the front "Pier Head," which took me right into Liverpool. I then remember going to a station, and having a good wash, as I was very dirty and dusty. I wandered about Liverpool for some time, but could not recognise any place I wanted, so thought I would go back the same way I came. I got on the car back to St. Helens; it was getting very late. I tried to get some sleeping apartment for the night, but it was so late I could not get in anywhere, so I thought I would still go farther on nearing A——n. I saw a kind of park (Haydock) with a railway bridge which looked a nice place for a shelter. I remember going to sleep, but before doing so I remember seeing two or three men in the park.

I can remember nothing else till I woke up [on Whit Tuesday, May 25th] and thought I would get some breakfast and go back to S——n. I had about 9*d.* in my pocket, knew I should want more, put my hand in my pocket for my wallet to get out another note, but could not find it. I looked where I had slept but could see nothing of it. I then stayed in the park for some time till I saw a party of ladies and children; they came up to me and asked what was the matter. I remember telling them I was not well; they asked me to have some milk, which I had, also something to

[1] I am indebted for this useful hint to Dr. Hadfield's article in Functional Nerve Disease.

eat. Towards night, knowing I had no money, I started to walk again; it looked so much like rain, and being tired I saw a chapel on the road. At the back there was a little washhouse. I went and sat in there for a time and had a sleep, then started walking towards Ath——n.

Before coming to Ath——n I went in a park close to and sat there for some time thinking and wondering where I should go. I found some food that had been left by someone and ate it, then went on to the library at Ath——n and stayed there for some time, then wandered about feeling very bad till I was found in Market-street about 12 o'clock [midnight, 26th-27th] and taken to the police station. They gave me some milk and questioned me, but could remember nothing. They then took me the next morning to —— Union. I remained there till my young lady and gentleman friend of mine came to fetch me [on May 29th], but could not recognise them, and went back with them by train to Manchester, but could remember nothing about the town, still having pains in my head."

The above statement accounts for the whole fugue, though, as before narrated, the events which transpired after he woke up in the park on the Tuesday morning to find his money gone had never left his memory. Z.'s story answers the question which naturally puzzled one at first, "If he on Monday sent the telegram to his fiancée, remembering her address, why had he not been able to return?" He definitely says that after sending it he went to sleep in the field and did not remember anything about the telegram when he awoke. Again, why did he on the Tuesday and Wednesday go back through the same towns he had passed through on Monday, since he had quite forgotten where he had been on the Monday? He told me that he "felt an impulse" to take that route, though he did not remember having traversed it previously. Thirdly, why did he "wake up" on the Tuesday morning so that subsequent events were remembered? His own theory, when questioned about it after his memory had returned, was that it was due to the shock of finding his money gone. It is more probable that on the corresponding morning in France in 1918 the danger of that particular series of air raids terminated, and this was subsequently confirmed by his recollection of that time and also by independent evidence. There seems little doubt that the men seen in the park late on Monday night took his money. He remembered noticing that they were a rough lot, but in his state of absolute exhaustion he went to sleep and remembered nothing till morning. It is possible that he fainted from exhaustion, for he had walked at least 25 miles on very little food since the Sunday morning, not including his wanderings all day about Liverpool. The comparatively large sum of money which he had with him represented the amount owing for the suit of clothes which he had arranged to fetch and pay for on the Sunday morning. It will be noticed that his objective was always among trees, and he finally came to a halt on the Monday night in a park near a railway bridge. He said that the combination of trees and railway gave him a sense of security. [Cf. his experience in France two years previously.]

By similar methods the memory of his past life was recovered and assimilated to consciousness, so that a complete history could be constructed. The missing tools were traced to a corporation parcels office where he had deposited them some weeks before Whitsun, and were recovered. Of the securities more anon.

History of Patient.

Z.'s family and personal history was good; no epilepsy or automatisms. Many years ago he had a bicycle accident, which rendered him unconscious but left no legacy of headaches or defective memory, and he was "as good a man as ever after it." Called up early in 1917, at the age of 40, he went to Etaples in August of that year and worked as a carpenter in an artisan company on hospital construction and similar work. All went well until he came in for an air raid at Easter, 1918, but the hostile planes did not come very near on that occasion. [At this point in the hypnotic recital patient shook and evinced other signs of emotion.] At Whitsuntide, 1918, there were very severe raids and the company's dining-hall was blown up, though, fortunately, it was empty at the time. In the early hours of Whit Sunday morning there was a very big raid, and patient was hit on the foot by a piece of shrapnel. He remembers going out of camp soon after to a small wood to find a safe place to sleep in, as he felt he dared not stay another night in camp. He was brought back and told that no one could leave the camp "on their own," but that a party would be organised every night, for those who wished it, to walk out to a wood some kilos away. Here were two railway lines, and he was told that a railway bridge was a safe place or, better still, against an embankment. A few days later proper dug-outs were constructed, and there was no need to retire to the wood. Z. experienced several other raids, which were chiefly during the week-ends. (The dates were verified from a calendar which he was able to obtain from a friend who had been with him at Etaples; this proved his memory of the events of that period to be very accurate.) The significance of these dates in connexion with subsequent events will be presently apparent.

Z. was always very apprehensive of raids and used to go to a dug-out or cave even when others did not consider it necessary to do so, thus gaining the soubriquet of "The Dug-Out King." One night he was leaving the hut and had to be stopped from doing so by the other men, whom he had awakened. He was aware of the occurrence and was not somnambulating, but felt compelled to go. Even till Christmas, 1918, weeks after the armistice, he felt this nervousness and restlessness at night.

Condition After Demobilisation.

Finally, in March, 1919, he was demobilised. He paid a visit to his brother in East Anglia, returning to Manchester just before Easter, 1919, after which he started business as a joiner. He resided with his former friends and rented a shop for his work.

During the ensuing year he was far from well. Although anxious to work, he felt unable to do so efficiently. His friends noticed that he was always worse at week-ends, when he frequently had to put off excursions which he had arranged with his fiancée. He was depressed and anxious and suffered constantly with "terrible" (sic) headaches. His memory was very defective. He also had a sense of impending disaster and a feeling that he must get "right away," though he did not know from what, and he had an ill-defined apprehension, which he knew was unfounded, that he would have to return to France. He felt he was not doing his work satisfactorily and was worried because he did not think he would be justified in marrying. He used to sit brooding in his shop and would often go out into the country for a day, thinking it would do him good and also because on these occasions he had a claustrophobia for his shop. This conduct appeared unreasonable to him, as he was ignorant of the reason impelling him to make these excursions; consequently he was ashamed to speak of them to his friends. This in turn led to his fiancée thinking he was not quite straightforward with her, which added to his unhappiness. He was only too conscious that his friends were watching his, to them, inexplicable conduct, and he became thoroughly miserable. He told me that during this period he feared for his reason, and, though suicide was not actually contemplated, he often wished he had been killed in France and was out of it all.

In addition to his general malaise there were several occasions when he was definitely incapacitated and went to his doctor. The most noticeable attacks were at Easter, Whitsun, July, August, and October, 1919, Easter and the three weeks preceding Whitsun, 1920. During the last period he was unable to work and consequently did not need the cloak-roomed tools. He felt too poorly to fetch them.

The relationship between these illnesses and events in France are shown in the following table, in which the dates of raids are verified by his friend's calendar and his illnesses from his own and his friend's statements:—

	1918.	1919.	1920.
Easter:	Air raid.	Unwell, went to his doctor.	In bed on the Saturday.
Whitsun:	Air raid.	Not fit.	Fugue.
July:	Raids 1st, 3rd, 13th, 24th, 31st.	Felt ill and went to his doctor.	
August:	Raids 1st, 10th, 13th.	Ill at Bank holiday.	
October:	Raid on return from leave at Boulogne.	Went to his doctor.	

On one or two occasions he suddenly collapsed face downwards, and on being picked up after one such attack asked "if he were in France." The events of Easter, 1919, may be briefly referred to because of their connexion with the missing securities. It was very difficult to recover the memories of these; he thought he had hidden them somewhere, but the only places at his legitimate disposal were his one-roomed shop and the house where he lived, so the choice seemed limited. Hypnosis, however, revealed that he had a vague recollection of taking them into the country and leaving them somewhere, but it was only after repeated hypnotism that the story could be pieced together. On Easter Monday, 1919, after an early visit to his doctor, as he felt ill, he felt impelled to take the papers with him into the country and took train for this purpose. At the end of the train journey he felt he must get still further away, so he took a vacant

seat in a charabanc which was bound for an historical part of Derbyshire. He left the charabanc and after walking some way through a wood, deposited the box in an ivy covered niche, subsequently returning to Manchester by train. A few days previously his brother had advised him to be very careful of the papers; it is therefore not surprising that when he went into the country feeling, perhaps subconsciously, that his own safety required it, he should have taken the securities with him. After hiding the papers he intended to fetch them, but forgot where they were; he felt that they were safe, however, and was accordingly easy in his mind.

Repression of War Memories.

Z.'s attitude towards his war memories was one of determined repression. All unpleasant memories were deliberately kept out of mind during the day and he gave the anticipated account of constantly repeated dreams of bombs and raids, together with a certain wood. This wood constantly recurred in his dreams, and was evidently the one near Etaples. Corroboration of the nightmares was obtained from the son of the house, with whom Z. shared a bedroom. Z. also made the interesting statement that at the times when he felt most ill he, in accordance with his friends' advice, made particular efforts to "forget" all about France, with the result that he noticed that his sleep was even more than usually broken by dreams and his headaches were much intensified. He used to wake with a start when dozing off, in a cold sweat and with his heart beating tumultuously. All this is quite in accord with the observations frequently made of the effects of repression, but the spontaneity with which he volunteered the information was striking. The battle dreams were particularly in evidence during the three weeks preceding the fugue and whilst he was in the infirmary.

Prior to the fugue he does not appear to have had amnesia for his army experiences, though his friends told him that his accounts did not always tally. It never once occurred to him that his wish to get away into the country, where he always sought a wood, was in any way connected with his conduct in France, where, it will be recalled, he was marched out at night to the woods of (?) La Foil and then felt safe.

Progress of Case.

After the first hypnosis on June 21st progress was rapid. Up to this, four weeks after the fugue, his memory had shown but little signs of returning, and it would be interesting to speculate as to what the outcome would have been had he had no friends to discover him and bring him for treatment.

Hypnosis was employed solely to recover the lost memory; to have used it to suggest that he would have no more fugues, without explaining to him how his illness had come about, would have been quite unjustifiable. The journeys into the country were his only means of escape, however inadequate, from his intolerable situation, and to block this safety-valve without showing him a better way out of his troubles might have had disastrous results, possibly even suicide. It was gratifying to hear him spontaneously relate how the weight of impending and unknown disaster which had been with him for so long was now quite lifted from his mind, and that he was sleeping well with no disturbing dreams. He volunteered the statement that an aeroplane which was one day near the hospital did not frighten him at all. He commented on this to his companions, because on previous occasions since leaving the army the sight of an aeroplane had always made him tremulous and nervous, even though his reason told him his fears were unfounded.

Stages in the Case.

The stages which culminated in the fugue were, therefore, first, the air raids, which affected Z. more than his colleagues. It will be remembered that he made for a wood on his own responsibility before the order was given for the men to sleep out, and he associated a wood, especially near a railway bridge, with safety. Then there was the episode of his feeling impelled to leave the sleeping quarters when he was stopped by his friends. Though not an unconscious act, it marks a stage towards automatism, as did his various excursions from Manchester. The Easter Monday occurrence was important in this connexion, since he afterwards entirely forgot where he had put the papers, though he remembered and spoke of the day's excursion, and, in fact, planned to make it again with his fiancée. The connexion between his malaise at weekends and the air raids is obvious, while "the fits" of falling suddenly on his face were repetitions of similar acts in France. The baleful influence of repression was throughout responsible for maintaining and intensifying his condition. At first he could remember all the events of his army life, later his friends told him the accounts did not tally, and finally the memories became completely dissociated. Possibly even half an hour of psychotherapy 15 months ago would have spared him most, if not all, the misery of the past year.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF THE

MYOCLONIC FORM OF ACUTE EPIDEMIC ENCEPHALITIS,

WITH RECOVERY.

BY DOUGLAS MCALPINE, M.B., CH.B. GLASG.

IN THE LANCET of July 17th three fatal cases of the myoclonic form of acute epidemic encephalitis were reported by Dr. Arthur W. M. Ellis. The following case may prove of interest on account of the mildness of the attack and recovery of the patient.

A. T., female, aged 25, dressmaker, was seen in the out-patient department of Maida Vale Hospital for Nervous Diseases on June 10th, 1920, with a complaint of general nervousness and depression, insomnia, difficulty in walking, and twitching in her muscles. About May 17th she had pain in the back of her right forearm; this continued until May 23rd, on which date she went for a bicycle ride into the country. The same evening she felt a "drawing pain" on the right side of her chest, not aggravated by respiration. On the 24th the chest pain was associated with tenderness. The pain continued until the 27th, when she then felt it right round her body just above the waist; this only remained for about 24 hours. From May 24th onwards she had felt depressed and tired and had not slept at all; she thought she was delirious at nights—the latter two statements her mother confirmed. Her bowels were not open between May 24th and June 3rd. About May 30th she first felt sudden muscular spasms in both legs, chiefly in the thigh and calf muscles; each spasm only lasted a second or so. A few days later she noticed them in her abdomen. With the onset of these spasms the pain in her right side became much better. On June 4th, whilst walking, her knees frequently gave way; this has continued since that date; she thinks it is due to the spasms. Her mother stated that she had been slightly drowsy during the daytime, but patient denied having felt drowsy. No history of vomiting, headache, diplopia, or difficulty in voiding urine.

Examination in out-patient department.—Patient looks pale with an anxious expression. She talks quickly and excitedly, but there is no speech defect. Eyes are bright and staring. She answers questions intelligently. As she stands her knees give way suddenly from time to time owing to sudden momentary contraction of the hamstrings, usually bilateral. On examining the abdomen in the recumbent position sudden shock-like contractions are seen involving the lower segments, chiefly the left, causing the umbilicus to be pulled downwards. The tone of the abdominal muscles is slightly increased. Reflexes are present in lower segments, but absent in upper. A fine irregular tremor is present in both legs on voluntary movement. The same shock-like contractions are present in certain muscle groups in the legs—especially frequent are those in the peroneal group of the right leg and in the posterior group of the left leg. The contractions are much shorter in duration though just as powerful as those in the abdomen.

Earlier in the same week, owing to the kindness of Dr. George Riddoch, I had an opportunity of seeing one of the three cases reported by Dr. Ellis, and the similarity between the movements in that case and the one I was examining was so striking that I felt sure that this was a case of a similar nature. She was admitted into Maida Vale Hospital on June 12th, under the care of Dr. Anthony Feiling.

Condition on admission and subsequent course.—June 13th: M.T. 98·0° F., P. 88, R. 20. Patient states that she is very depressed and has considerable difficulty in moving in bed. Seems less excitable than on June 10th; no drowsiness; no disorientation. Constipation marked, bowels not acting since June 10th. Insomnia still present. Pupils moderately dilated; slight inequality, left being larger than right. Unsustained lateral nystagmoid movements. No strabismus or diplopia. Pupils react to light and accommodation. No facial asymmetry or other cranial nerve palsies. Fine tremor in outstretched hands; no ataxia. No sensory disturbance.

All movements in arms weak and carried out with apparent difficulty. No myoclonic movements. In the abdomen these movements are less frequent than on June 10th, occurring 2–3 per minute; left lower segment mainly affected. No reflex response can be obtained in upper abdominal segments; those in the lower segments are markedly slow, closely resembling the myoclonic movements. A general stimulus to abdomen is sometimes followed after a short latent period by a myoclonic movement of lower abdominal segments. The legs show a slight general weakness, especially distally. Hypotonia is present. No myoclonic movements observed. Fibrillary twitchings are present intermittently on plantar and inner aspects of left foot. Reflexes present in both legs, but are less brisk than normal. Bilateral flexor plantar response. No sensory disturbance. Urine: No abnormality; no difficulty in micturition. Heart and lungs negative.

18th: T. 99·6°, P. 120, R. 22. Still complains of general weakness and loss of appetite. Insomnia continues despite hypnotics. Semi-delirious during nights of 14th and 15th, but not since. She has not felt any more twitchings in her legs. No sweating. Frontal headache since 14th. Morning temperature 15th, 99·8°. Evening temperature remains normal. Pulse ranges between 100 and 120. Myoclonic movements less frequent in abdomen and vary in amplitude. Cerebro-spinal fluid clear. Cell count 15 per c.c.m.; protein content not estimated. Wassermann reaction negative.

22nd: M.T. 98·8°, P. 100, R. 20. Feels slightly better; sleep has improved but little. Constipation still marked. This morning felt twitchings in her legs similar to previous ones. Since 18th there has been a morning rise of temperature to 99·4° or 99·6°. Normal temperature every evening. Pulse 92–112. Pupils still unequal. General hypotonia still marked. Myoclonic movements in abdomen, but none observed in legs. W.B.C. 7000. Differential count normal.

28th: M.T. 98·6°, P. 92, R. 20. Patient looks and feels better, but is still weak. On 26th she began to have shooting pains intermittently down back of both legs, especially left; her legs constantly ache and she says she does not feel as if they belonged to her. No more twitchings in legs. Bowels more regular; sleeping better. Temperature has been normal since 22nd, except for a slight morning rise on 25th and 26th to 99·2°. Pulse-rate still increased. Pupils more nearly equal. No nystagmoid movements. Abdominal reflexes are now present in upper and lower segments, but less brisk on right side than on left; still abnormally prolonged. Shock-like contractions occasionally seen chiefly in upper segments. Reflexes in legs remain the same except that left knee-jerk is more brisk; no plantar response can be obtained in right foot; no sensory disturbance in arm or legs.

July 2nd: M.T. 98·6°, P. 96, R. 20. Feels better. Reads and knits. No pains in legs for last two days, but still has aching sensation in legs. No headache. Myoclonic movements less marked in abdomen. No rise in temperature since June 28th. Pulse still rapid.

9th: M.T. 98·4°, P. 92, R. 22. Improving, less depressed. No pains. No muscular twitchings. Sleep is improving, but still restless at night. Pupils equal; no myoclonic movements observed in abdomen. Muscular power in arms and legs improving.

16th: M.T. 98°, P. 88, R. 20. Patient was up for half an hour in a chair on 12th and 13th, but felt shaky; also had pains down back of leg. Pulse quicker on 14th and 15th—i.e., 112 and 108—but pulse-rate was not observed to be more frequent than usual on returning to bed each day. For last 10 days skin of sole of feet has hardened and patchy desquamation is now taking place on her toes and on adjacent sides of distal phalanges in her hands. No myoclonic movements in abdomen observed—abdominal reflexes are present and equal in all segments but are still abnormal. In the legs reflexes are now normally brisk and both plantar response flexor in type.

19th, T. 98·4°, P. 104. R. 20. Feels stronger, appetite improving, sleeping better. Still has occasional shooting pains in both thighs. Also aching sensation intermittently. She has not been up since 16th owing to increased pulse-rate, which ranges between 88 and 100, but which remains regular. The patient is still under treatment.

Remarks.

The mildness of the attack in this case is of especial interest as contrasted with the very high mortality of the cases published in this country and in France. The initial pain, the insomnia and delirium, the marked subjective sensation of prostration, the constipation, the shock-like contractions most marked in the abdomen, a low-grade fever, and tachycardia are symptoms in this case in close accord with those described as part of the myoclonic form of acute epidemic encephalitis.

The following points are of interest in contrasting this case with those reported by Dr. Ellis:—

1. The inequality of the pupils and the absence of marked dilatation.
2. The absence of vomiting, difficulty in urination, disturbance in speech, leucocytosis, and sweating.
3. The presence of general hypotonia; this was a well-marked feature in the cases reported by Lereboullet and Foucart.[1]
4. The character of the abdominal reflexes.
5. The trophic changes in the feet and hands.

I am indebted to Dr. Feiling for permission to publish the case.

South Kensington, S.W.

A NEW METHOD IN RHINOPLASTY.

BY GILBERT CHUBB, D.Sc., M.B.LOND., F.R.C.S.ENG.

ASSISTANT SURGEON, THROAT HOSPITAL, GOLDEN SQUARE; AND PLASTIC SURGEON, QUEEN'S HOSPITAL FOR FACIAL INJURIES, SIDCUP.

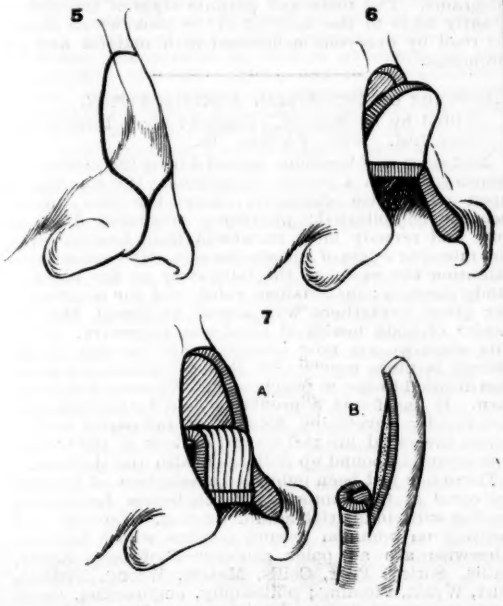
THE case described was a gunshot injury. The tip of the nose, the anterior part of the septum, and the whole of the columella had disappeared. The nasal bones were, however, intact, and the greater part of both alæ were present, lying flat upon the face. (Fig. 1.)

Photographs of Mr. Gilbert Chubb's case showing Re-formation of Nose by a Tubed Pedicle taken from the Chest Wall.

At the first operation a transverse tubed pedicle was made on the left side of the chest, immediately below the breast. The parallel incisions for this had a concavity directed upwards in order to prevent undue tension upon the pedicle in tubing. At a subsequent operation a piece of cartilage taken from the junction of the sixth and seventh ribs was carefully shaped to correspond to a plasticine reconstruction of the patient's nose and inserted beneath the skin at one end of the pedicle. Deep mattress sutures were employed to prevent its subsequent displacement pending the formation of fibrous adhesions to the surrounding tissues. The other end of the pedicle was then attached to the left forearm (Fig. 2, in which also the cartilage can be clearly seen at the upper end of the pedicle). Several weeks were now allowed to elapse in order to secure an efficient collateral circulation in the pedicle from this new attachment. At the next operation the pedicle, together with the cartilage implant, was released from the chest and attached to the nose. (Fig. 3.) Figs. 5, 6, and 7 illustrate the preparation of the

[1] Lereboullet and Foucart: Bullet. Mém. de la Soc. Méd. des Hôp. de Paris, 1920, xxxvi., 391.

nose for this attachment. A mesial incision (Fig. 5) separated the remains of the alæ from one another, and allowed of their being raised from the face. In the view of the nasal cavity so obtained can be seen the anterior limit of the remains of the septum. (Fig. 6.) A flap of skin outlined by the circular incision, seen in Fig. 5, was then dissected up and turned down upon its lower border as a hinge. (Figs. 6 and 7A.) The cut edge of the skin and mucous membrane lining the alæ and nasal cavity was defined, and the lower edge and sides of the flap carefully sutured to it with horsehair. Fig. 7A shows this inversion



of the flap nearly completed. The result is to complete the lining of the newly reconstructed nasal cavity, and completely shut it off from the wound. The free cartilage-bearing end of the pedicle was then trimmed as seen in Fig. 7B, so as to present two tongues, one long, bearing the cartilage and trimmed to fit the raw area left by the inversion of the flap, into which it was stitched. The shorter tongue was stitched to the lower border of the inverted flap and the intranasal lining of the cut tips of the alæ. In this way no raw area was left in the nose, the latter remaining dry from the operation onwards, and all healing being by first intention.

A columella was then formed from the outer portion of the upper part of the pedicle. The incisions for this purpose were carried up in a concentric manner over the tips of the alæ, so as to allow of the turning in of the columella and at the same time to bring the alæ forward into a normal position. All stitches were left long and untied, and the parts unapproximated until the last stitch had been inserted, thus ensuring as careful an approximation of the cut edges in what would finally be inaccessible regions as elsewhere. All stitches after tying were left long and tied together in a tassel issuing from the nares in order to ensure their ultimate removal.

Fig. 4 shows the patient several months after the completion of the final operation. During this interval the nose had undergone no change, and was as firm and "springy" as the normal organ. The rotation of the skin flap, in order to line the nasal cavity, and thus ensure against subsequent scar contraction, and the tubing of the larger flap are surgical methods extensively employed at the Queen's Hospital for Facial Injuries. The implantation of the cartilage on the chest and its elevation to the face by means of a pedicle borne on the arm has several advantages over methods previously employed. There is a complete absence of scarring about the face, neck, or breast, absolute symmetry can be maintained throughout the surgical treatment, and finally, the skin and cartilage implant can be got into a satisfactory condition away from the face before there is any interference with the latter.

Reviews and Notices of Books.

L'ANESTHÉSIE LOCALE EN OPHTALMOLOGIE.

By Dr. DUVERGER, Professor of Ophthalmology at Strasburg. Paris: Masson et Cie. 1920. Pp. 96. Fr.6.50

THIS little book will be found full of interest to the ophthalmic surgeon, and though all the views of the author may not receive general endorsement, there is no page which cannot be read with profit. With regard to the ordinary methods of cocaine anæsthesia there is little new to be said, but we note that for ordinary cataract operations the author prefers to rely on so strong a solution as 10 per cent., three instillations of which produce an insensibility that is complete. In the experience of most ophthalmic surgeons half this strength is sufficient for the purpose. The main interest and purpose of the book, however, is the description of the methods of deep injection for operations on inflamed eyes and for enucleation of the globe, as well as for operations on the lids and lacrymal sac. The solution employed for all these is novocaine, generally in a strength of 4 per cent. with a few drops of 1:1000 adrenalin added, of which 2 c.cm. are required to render the globe anæsthetic, or three if the eye is inflamed. The solution is injected deeply by means of a needle 3½ cm. long—sufficient to ensure its reaching the region of the posterior pole of the eye and ophthalmic ganglion without any danger of pricking the optic nerve. As in inflamed eyes the conjunctiva is acutely sensitive it is recommended that this deep injection should be made through the skin of the lower lid and continued between the inferior and external rectus. The outer zone of conjunctiva, which has its nerve-supply not from the ciliary nerves but from the nerves of the lids, can then be rendered anæsthetic by a subconjunctival injection of the novocaine solution. Similar detailed directions are given for rendering the skin anæsthetic for plastic operations on the lids and for extirpation of the lacrymal sac. The section on anæsthesia for advancement operations is worthy of note. The author finds the usual method of cocaine instillation unsatisfactory, and arguing that the sensitive nerve-supply of the muscles is from the ocular branch of the nasal, recommends the same technique of deep anæsthesia as for enucleation of the globe, or alternatively injections in the neighbourhood of the muscle, which, however, are not so effective.

For rendering the whole orbit anæsthetic more difficult procedures are called for. For Krönlein's operation a method is recommended for anæsthetising the superior maxillary nerve by piercing the sphenomaxillary membrane and injecting the solution into the pterygo-maxillary fossa. The author believes that the contra-indications to his methods are almost negligible and that they are destined practically to banish general anæsthesia from ophthalmic surgery.

THE AFTER-TREATMENT OF SURGICAL PATIENTS.

First edition. By WILLARD BARTLETT, A.M., M.D., F.A.C.S., and Collaborators. London: Henry Kimpton. 1920. In two volumes. Illustrated. Pp. 1066. £3.

THOUGH, as the author remarks, the need of after-treatment is, in many instances, in inverse proportion to the quality of work done on the operating-table, there certainly remains a great deal that can usefully be written on this subject. The surgeon will have his own methods which his experience has proved satisfactory; the house surgeon is working under supervision and will never be out of reach of advice when he needs it; and neither the one nor the other will often refer to any book on after-treatment except in cases of special difficulty which have not responded to ordinary methods, or when treating cases of uncommon diseases or after unusual operations. Therefore if such a book as this is to be of any real assistance it must give precise descriptions of all measures which may be useful in the treatment of both common and uncommon complications that may arise after any operation, and

actual details of the case of patients after special operations.

The two volumes satisfy these requirements to a very large extent. The various measures of post-operative treatment recommended are the results of the practical experience of the various authors, and others from whom they quote; they are described in considerable detail, and for the most part very clearly. The first volume deals with general subjects, such as sleeplessness, bed-sores, post-operative feeding, exercise, and massage. The second volume treats of methods of after-treatment that may be necessary following operations upon the various organs. The illustrations are well chosen and fairly numerous. There is a useful index, and reference is easy.

COMMON DISEASES OF THE SKIN.

By Dr. G. GORDON CAMPBELL. Lecturer on Dermatology and Pediatrics. New York: The Macmillan Company. 1920. Pp. 229. 21*s*.

Dr. Gordon Campbell has adopted a somewhat unusual method of dealing with skin diseases. He has written a volume of 229 pages on the common diseases of the skin, amongst which he includes 43 distinct conditions. They are dealt with in alphabetical order, and are very fully illustrated, whilst pathology is barely mentioned, and treatment dealt with in the briefest outline. The common disease, impetigo contagiosa, has no fewer than seven illustrations, four of which occupy a whole page each. Syphilis has 24 illustrations, 16 of which are whole-page plates.

From these examples the reader will realise that the object of the author is to show graphically the varieties of common skin maladies. In the majority of the illustrations this object is obtained, but in certain cases the student would be led astray. Pityriasis rosea has no fewer than four whole-page pictures, from none of which could a diagnosis be made apart from the letterpress. Sudamina and milium and several of the lichen planus and urticaria plates are equally unhelpful. In a book of this type fewer plates, all of an equally high standard, would better have served the student. The paragraphs on treatment, while brief and to the point, are of varying value. Psoriasis is summarily, acne and ringworm are fully, dealt with.

There is certainly need of a text-book conceived on Dr. Campbell's lines, but some modifications on the lines above indicated would appear to be advisable for a second edition.

MALARIA AT HOME AND ABROAD.

By S. P. JAMES, M.D., D.P.H. (Lieutenant-Colonel, I.M.S., retired). London: John Bale, Sons, and Danielsson, Ltd. 1920. Pp. 234. 25*s*.

IN this work the aim of the author "to provide an elementary guide to medical men and administrators who may have to deal with malaria at home or abroad during peace or war" is amply fulfilled. In it will be found a comprehensive and lucid account, not only of malaria from the clinical point of view, but of the life-history of the malaria parasite, the differentiation and distribution of the more important varieties of mosquitoes, and the various methods by which the breeding of mosquitoes may be combated and the incidence of the disease lessened in the malarial regions. The introduction of malaria into England by carriers from war areas where the disease is prevalent, and its spread among the local population, are fully described, and it is of special interest that, in the course of a malaria survey in Kent, cases were found that could not reasonably be ascribed to an origin from military foci, and which were regarded by the author as probable examples of indigenous malaria. Attention is drawn to the frequency of latent infections, in some of which the earliest clinical manifestations had been delayed for a period of several months subsequent to demobilisation. Exception may perhaps be taken to the statement that the greater number of the Macedonian infections were with both benign and malignant tertian parasites; cases of double infection were doubtless common in Macedonia, but that they constituted anything approaching a majority of the total number of cases is contrary to the impressions formed by those who were working on the spot. On the vexed question of quinine administration in blackwater fever the opinion of the author that, with parasites present in the blood at the beginning of an attack, quinine should be withheld, will not receive unanimous endorsement. The publication of this work at the present time is especially opportune. The subject-matter is well arranged and the text is supplemented by a large number of excellent illustrations and diagrams. The terse and graphic style of the author greatly adds to the interest of the book, which should be read by everyone concerned with malaria and its problems.

LECTURES ON INDUSTRIAL ADMINISTRATION.

Edited by B. MUSCIO. London: Sir I. Pitman and Sons, Ltd. 1920. Pp. 276. 6*s*.

THE science of medicine passed during the nineteenth century through a period of precision; life was looked upon as precise chemistry, none the less precise because complicated; pharmacy presented drugs to cure and remedy most variations from health; even the microbic origin of certain diseases only concentrated attention the more on the laboratory as the place to study diseases; materialism ruled, and the teaching of our great forefathers was almost neglected, that for health of body health of mind was necessary. From this stage we are now emerging, and no sign of the change is more pronounced than the increasing attention devoted to-day to psychology. We meet it at every turn. It has found a profitable field for expansion in the rapidly developing science of industrial health, where the social life and mental outlook of the worker is inseparably bound up with his health and sickness.

There has just been published a selection of lectures delivered at the Cambridge Psychological Laboratory dealing with industrial administration. Here we find meeting on common ground persons whose interests otherwise are as poles asunder—Professors Myers, Cullis, Sorley, Pear, Collis, Messrs. Wrong, Stelling, Burt, Wyatt, Fleming; philosophy, engineering, social economy, psychology, physiology, medicine, all are represented, each benefiting by contact with the other. Professor Sorley deals with ethical aspects of industry; he claims a man should give an equivalent for what he gets, and the employer "a fair day's wage for a fair day's work." And further aptly says: "It is good to feel tired sometimes, though it is not good to feel tired all the time. Nothing great has been accomplished without toil." Mr. E. M. Wrong discusses some tendencies in industry, and claims that industry must discover some more satisfactory method of responsible government than at present exists. Management must become a learned profession; and managers must recognise their duty is to deal with the psychology of men, rather than the physics of materials. Expert advisers, engineers, and chemists should deal with technical problems. Managers to-day are over-busied with many things and do not study labour enough or carry out scientific observations upon the human material they have to control. Mr. A. R. Stelling explains the principles introduced by Dr. Frederick Taylor, and points out how failure has followed part adoption of these principles, with omission usually of those which concern the psychology of the workers. The impersonal factors are adopted, the personal neglected. The right way to follow out motion study is explained, and the necessity for humanity in works management is pointed out. Mr. Stelling holds that Taylor's theories are practicable in this country, providing a complete solution of the problem of the increase of production. Mr. Cyril Burt treats of vocational selection of workers, an entrancing and comparatively new subject in which mental and physical attributes come together for study. Here individual psychology, "the youngest branch of the youngest of the sciences," is invaluable. Vocational selection not only pays, but is a measure of social justice. This lecture is one of the best in the volume. Mr. Wyatt deals with an interesting side line, the psychology of advertising.

The reader after perusing it will ever after pay more attention to the advertisement-covered hoardings. Professor T. H. Pear carries us into the realm of abstract psychology, and we frankly confess the expedition does not grant much knowledge for practical daily use.

A discussion of industrial overstrain and unrest by C. S. Myers, on the other hand, though at times abstruse, will appeal more to our profession. He deals particularly with fatigue, and claims that "the pathological expression of fatigue—i.e., overstrain—is far less prevalent in muscular than in mental exertion." He puts in a plea for an organised whole-time industrial medical service of physicians specially trained after graduation, comparable to that in existence for the maintenance of public health; and for the establishment of industrial clinics and sanatoriums. Professor Winifred Cullis writes on women in industry, a subject peculiarly her own; hard work should not if under good conditions exert a harmful effect upon a woman, nor will it interfere with the function of child-bearing. If fundamental physiological facts are borne in mind "women who wish to remain in industrial employment should be able to do so with benefit both to themselves and to their employers."

The way in which needed health reforms in industrial management can be instituted is dealt with by Professor Collis, who holds that "modern industry wrought by progress on the anvil of utility is a tool intended for welfare." Welfare departments in factories with supervisors, doctors, nurses, and dentists are strongly advocated to remedy the complaint put forward by workers that "their hours should be so long and their wages so small, their lives so dull and colourless, and their opportunities of reasonable rest and recreation so few." Interesting details as to personnel and duties to be undertaken are given from the experience of the Ministry of Munitions. The book concludes with lectures by Mr. Fleming and Mr. S. Florence on the need for and the methods of carrying out industrial research. It is readable throughout, and contains information with which every industrial medical officer should be familiar, and be glad to have it at his disposal.

A ST. HELENA WHO'S WHO.

A Directory of the Island during the Captivity of Napoleon. By ARNOLD CHAPLIN, M.D. Cantab. London: Arthur L. Humphreys. 1919. Pp. 257.

EVEN the smallest or most trivial occurrence connected with Napoleon is of interest, and although Dr. Chaplin's book is mainly a chronicle of trivialities, it is well worth reading as a record of the people among whom a great man and a fallen Emperor passed the last years of his life. Dr. Chaplin has managed to collect details of apparently everyone who was resident in the island during the captivity, from Sir Hudson Lowe down to the odd job man at Longwood. And society in general seems to have much resembled that described by Mrs. Sherwood in the "Fairchild Family" and "Little Henry and His Bearer." There was a worldly and, to put it mildly, none too moral a section, while another section was severely Evangelical, and used to offer up nightly prayers for the salvation of Napoleon's soul. Slavery existed, but was finally put down by the H.E.I.C., with the voluntary agreement of the island and at the instigation of Sir Hudson Lowe, in 1818. One of the most interesting personalities on the island was the Rev. Richard Boys, senior chaplain. He was a divine of extremely rigid and uncompromising views, one, in fact, who would have been the delight of the Dowager Countess of Southdown, and whether from desire of Heaven or from fear of Hell, the morals of the island underwent a vast improvement from his efforts. Thus, in 1813 the illegitimate baptisms were 198; in 1815, when Mr. Boys was appointed, they fell to 58; in 1820 they were 17. During the years 1822–1825 the island underwent a religious revival owing to the exhortations of Mr. Boys, and the numbers for these four years were respectively 6, 3, 4, and 7. He was obviously tactless and narrow-minded, but absolutely fearless in doing what he believed to be right. In July, 1821, a few days before the departure of Lowe and his staff, Boys preached a sermon which gave rise to much surprise among its hearers. No copy of the discourse is extant, but Lowe was so much struck by it that he made a careful analysis of it, which he submitted to the Council on the day following. Lowe's précis will be found in Dr. Chaplin's book. The text was, "Verily I say unto you, that publicans and harlots go into the Kingdom of God before you," and the sermon was evidently of the kind which made Lord Melbourne say, after hearing a similar discourse, "Things have come to a pretty pass when religion is allowed to invade the sphere of private life." However, the indomitable Mr. Boys, after coming to grips with the Council, retained his position until 1830, when he retired on a pension, and we think that the Council deserves credit for its attitude towards him, having regard to contemporary modes of thought.

Dr. Chaplin's last chapter brings to mind those romances of our boyhood which always left off at a critical juncture—e.g., "At this moment the arras parted and the figure of a monk appeared who bore a knotted whip." For Dr. Chaplin mentions the fact unknown to most people that besides the Lowe papers in the British Museum there exists in the custody of the Court of Chancery a large collection of documents left by Major Gorrequer, military secretary and A.D.C. to Lowe, nearly all of which deal with the captivity, including Gorrequer's private diary. In 1855 these were considered by Gorrequer's executor to be too secret and confidential to publish, and in 1881 Mr. Vice-Chancellor Bacon made an order for these documents to be kept by the Court. At this date, however, we should imagine that no one's feelings would be hurt by their publication at least in part, and as they are probably of extreme interest it may be hoped that the information contained in them will see the light. In the boyhood's romances the promise of "to be continued" was always kept.

A PRACTICAL TREATISE ON OPHTHALMOLOGY.

By L. WEBSTER FOX, M.D., LL.D. London and New York: Appleton and Co. 1920. With 6 coloured plates and 300 illustrations. Pp. 831. 35*s*.

IN the main this work follows the lines of previous text-books. The author's claim that in this new edition he presents all the modern thought and practice of ophthalmology can hardly be allowed. No ordinary text-book could possibly do this, nor is it desirable that it should. Take glaucoma, for example. Its pathogenesis opens up wide problems whose solution is yet to seek, and the same is true of most forms of choroiditis and retinitis. A text-book should give some idea as to what these problems are, but can hardly be expected to give all the various attempts at solution which different authorities have proposed. Similarly with regard to the operative treatment of conditions, where many alternative operations are possible selection is indispensable.

So far as it goes, this book is a reliable guide for the student. The ophthalmic surgeon will be chiefly interested in the description of an original operation for conical cornea, and perhaps in an original illustration showing colloid growths of the retina. The Elliot operation for glaucoma which is now well established is described by Colonel Elliot himself in an appendix, but it is a pity that the description is not accompanied by illustrations. The general get-up of the work, the print and style of illustrations, are all that can be desired.

THE PILGRIM'S BOOKS.

No. 2: Toasts, Rakes, and Cits. London: Philip Allan and Co. 1920. Pp. 256. 5*s*.

THIS little collection consists of papers from the *Tatler*, for the most part written by Addison and Steele, although some few are by other hands. They have been selected so as to show modes and manners, mainly urban, in the eighteenth century. Talleyrand said that no one could form any idea of how pleasant life could be who had not lived before the French Revolution, and certainly the life depicted in eighteenth-century light

literature paints a most graceful and happy existence for the upper and even for the middle classes. As for "the swinish multitude," they certainly had more of the hardships of life than anything else, but they enjoyed themselves hugely in a coarse and somewhat brutal manner, and apparently there was nothing like the unrest which is so obvious to-day. The curious thing about the eighteenth century was the admixture of coarseness with extreme refinement. Think of Swift's picture of society as drawn in his "Polite Conversation" in his poem describing a lady's bedroom, and of the incidents described by Lord Robert Seymour in his diary, and compare these with the grace of the dress, the outward show of courtesy and dignity in manners, the art of Gainsborough, Reynolds, Romney, and Cosway.

To read the *Tatler* and *Spectator* is always a delight, and this little book will be a pleasure to many who have not the time or the energy to read the somewhat voluminous originals. One paper, that on p. 217, entitled "Dr. Young," is of special interest to our profession as giving an amusing picture of a quack.

JOURNALS.

Journal of Pathology and Bacteriology. Vol. XXIII., No. 3. Pp. 241-370.—The Cultivation and Isolation of *Bacillus tetani*, by R. S. Adamson. To isolate the tetanus bacillus from septic wounds the author recommends culture in alkaline (– 10 or – 20) broth, either anaerobically or aerobically with *Bacillus proteus*. These mixed cultures give good yields of toxin, and any suspected culture should be grown for 4 to 8 days and then inoculated into a guinea-pig.—The Biochemistry of *Bacillus œdematiens*, by C. G. L. Wolf. Exact analysis of cultures shows that this anaerobe is both proteolytic (like *B. sporogenes*) and saccharolytic (like *B. welchii*).—The Influence of Glycerine on Certain Streptothrixes Isolated from Malignant Growths, by A. S. and H. G. Leyton. Three strains growing white on plain agar produced abundant yellow pigment on the addition of glucose and glycerine.—On the Antitoxic Content of Some Gas Gangrene Sera Used in the Later Stages of the War, by H. Henry.—The Precipitation of *B. welchii* Toxin, by H. Henry and M. Lacey. The toxin of *B. welchii* reaches its highest value in meat-broth cultures in 12-24 hours and thereafter rapidly depreciates; it is also inconveniently unstable in the filtrates from such cultures. The highest potency is also relatively small, a good preparation containing no more than 10 mouse minimal lethal doses per c.cm. A stable concentrated toxin may be obtained by precipitation by ammonium sulphate or alcohol, and best by dissolving the precipitate obtained by two-thirds saturation with ammonium sulphate in water and reprecipitating by the addition of four volumes of alcohol. This is very useful both for immunising horses and for titrating their sera and keeps without deterioration.—The Anaerobes Responsible for Gas Gangrene in Man, by H. Henry and M. Lacey. The isolation and identification of the anaerobic bacilli from cases of gas gangrene is very difficult. The authors have used guinea-pigs protected against one or more species by a preliminary injection of specific antitoxic sera; the animals then act as differential filters, allowing those organisms only to grow and invade the blood against which they have not been immunised. In 50 consecutive cases examined in this way *B. œdematiens* was found five times and *B. fallax* twice, the rest being *B. welchii* or *Vibrion septique*.—A Comparative Study of Experimental Bilharzinsis in Monkeys contrasted with the Hitherto Described Lesions in Man, by N. H. Fairley. The original must be consulted for this valuable description of the symptoms and anatomy of monkeys infected in Egypt with *B. mansoni* and *B. hæmatobia*, which throws much light on the human disease and on the differences between the two parasites.—The Fate of "Washed Spores" on Inoculation into Animals, with special reference to the Nature of Bacterial Toxæmia, by F. H. Teale and E. Bach.—The Relation Between the Quantity of Serum Administered and the Active Immunity Produced in the Simultaneous Vaccination against Hog Cholera with Virus and Serum, by T. B. Haslam. Large quantities of serum do not interfere with active immunisation.—Spirochætal Jaundice: the Morbid Anatomy and Mechanism of Production of the Icterus, by J. W. McNee. From a study of five fatal human cases and experimental guinea-pigs, the author concludes that the jaundice is due to destruction of liver cells and not to excessive hæmolysis or biliary obstruction as has been supposed.—A Saccharomyces in Mesenteric Glands of the Human Body, by T. Tanaka.—Comparison of Structures of Red and White Cells, by E. Emrys-Roberts. Reflections on the fact that leucocytes shrink on drying in a different way from red cells.—A New Pathogenic form of Streptothrix, by A. G. Gibson. Isolated from a spleen excised from a case of acholuric jaundice.—Variation in Bacteria in Relation to Agglutination by Salts and Specific Sera, by J. A. Arkwright. Cultures of Shiga's dysentery bacillus and other organisms yield two forms differing widely in their agglutination reactions and mode of growth.—A New and Simple Criterion of a Positive Wassermann Reaction based on the Analysis of over 2000 Quantitative Tests, by C. H. Browning and E. L. Kennaway. If the amount of complement giving just complete lysis with the negative control serum is reckoned as 100, any serum giving complete lysis with 200 complement or more is positive, those taking 150 or less negative and the rest suspicious.—The Specific Relationship of Heterogenetic Antibodies to Certain Tissue Lipoids, by T. Taniguchi. The injection of guinea-pig organs into rabbits gives rise to immune body for sheep red corpuscles in the latter's serum; alcoholic extracts of the antigen can inhibit the immune body.—A Source of Fallacy in the Wassermann Reaction depending on Heterogenetic Antibody in Human Serum, by T. Taniguchi. Human serum not infrequently contains heterogenetic sheep hæmolysin; it is therefore not safe to use alcoholic extracts of heterogenetic antigens (guinea-pig or horse heart) in the Wassermann test.

In the *Journal of the Royal Army Medical Corps* for July Captain S. H. Daukes tells how many were the schools, how valuable the courses in military hygiene that were required during the war to provide R.A.M.C. officers and men to fill the sanitary sections which kept the armies on the various fronts free of preventable disease. At Chelsea, Leeds, and Blackpool the schools each did a great work for the war, and we hope their influence is still active in the country now the troops have come back. The story is one that all should read to learn how much a skilful civil practitioner must acquire before he is fully efficient as an army officer.—Captain F. E. Reynolds reports from Baku that agglutination of proteus vulgaris emulsion in 1/100 dilution (Weil Felix reaction) is evidence that the case concerned is one of typhus fever, also that negative results during the second week of a pyrexia exclude acute typhus fever as a diagnosis.—Lieutenant A. W. J. Pomeroy describes how he materially reduced mosquitoes and malaria at Dar-es-Salaam in German East Africa. The Germans had decided to fight malaria here by quinine only, the destruction of mosquitoes being, it was thought in 1912, too large an enterprise. Lieutenant Pomeroy, who was entomologist in South Nigeria, thinks it is better to abolish mosquitoes by doing away with their breeding grounds. He had 50 natives permanently at work, sometimes 200. They drained the swamps, cleaned up the house-yards, oiled the waters he could not drain, put fish in the drains to eat the larvæ, and kept cattle off the swampy grounds, as their footprints made troublesome breeding places. As stegomyia and culex were diminished as well as anopheles, the town became more comfortable as well as healthier. Ointments are little good to keep mosquitoes away; that most recommended is made of equal parts of soft soap, paraffin, and eucalyptus oil.—A very suggestive lecture on Gas Poisoning, given by Dr. C. G. Douglas at the Royal Army Medical College, is reported. The Germans used four kinds of poison gases: (1) acute lung irritants, "green cross," chlorine, phosgene, &c., causing acute pulmonary œdema; (2) lachrymatories, as xylyl bromide; (3) vesicants, "yellow cross," mustard gas, scorching and blistering skin and mucous membrane—the necrosed mucosa might become secondarily infected, when broncho-pneumonia might follow and cause death; (4) sensory irritants, "blue cross," chlorarsines, acting on the mucosa of the respiratory tract causing burning and aching pains, nausea, and mental depression. At first gases came drifting over in clouds, later in shells, or from projectors which discharged gas in great volume over a restricted area, securing a high concentration. Against the earliest attacks we had no protection; later, with an effective respirator and good discipline, casualties and fatalities decreased. In the last 15 months of the war the army had 160,526 gas casualties (14 per cent. of the total casualties experienced), and of these only 2·5 per cent. died. Four-fifths of these 160,526 were due to mustard gas. Those badly gassed with chlorine were apt to develop acute pulmonary œdema and to die within two days. Such cases could not be allowed to walk; they must be carried on stretchers, and their great number at one time made tremendous difficulties for the bearers. Mustard gas caused casualties rather than fatalities, and if men wore their gas masks few died. Gas attacks were terrifying—the numerous casualties occurred so suddenly. As time went on the period under treatment was always being shortened, particularly in France. There were few sequelæ; the most common was the "irritable heart syndrome," shown by Haldane to be largely neurasthenic. It follows that gas poisoning should be treated near the front, for cases took months to recover in England against weeks in France—a serious thing. Not only were the men wanted in France, but their unnecessary care in England absorbed equipment and workers.

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THE LANCET.

LONDON: SATURDAY, AUGUST 14, 1920.

The L.C.C. and the M.A.B.

THE embarrassing position of London in matters of health administration has always been recognised by those who study local organisation, and the problem of developing, and where necessary remodelling, that administration, when the health of so vast and heterogeneous population is concerned, is admittedly one of unending difficulty. The existing position of the Metropolitan Asylums Board, and the proposals that were recently made by the London County Council for its modification, form a very good example of the complexities that have to be unravelled before arriving at a working plan, and of the unlikelihood that any plan should escape criticism.

A report was submitted recently to the London County Council by its Special Committee on Health Administration, dealing with the organisation of health services in London. A general survey of health administration in London had previously been prepared by the Clerk and the Controller of the Council,[1] and armed with this information the Special Committee defined the general lines upon which the organisation of London health measures should be developed, if those lines were to be elastic in character, so as to allow for adjustments and alterations when brought about by the requirements of new legislation. The report of the Special Committee followed the general objective of the Ministry of Health Act, 1919, in that its scheme aimed to bring all the health services concerned under a unified control. The development of these services, as set out in the report, which should be studied, showed the responsibilities of the London County Council for local sanitary work, for the treatment of infectious disease, and for the provision of school medical service, while the relations of the Council towards the treatment of the insured were described, as also the measure of coöperation extended to various voluntary health organisations. The difficulties and anomalies in this congeries of health services were categorised and the existence of overlapping and deficiencies honestly stated; and a series of recommendations were arrived at. These recommendations, which together with the report received the endorsement of the Council, proposed that the health functions of Poor-law authorities should be divided between the Council, the City Corporation, and the Metropolitan Borough Councils in accordance with the MACLEAN Report,[2] and that the administration in London of future health services should be similarly entrusted, the Council being the central organising authority. It was further recommended that the Council should have power to appoint a Health Committee composed of its own members and of experts, to whom the various duties accruing under the scheme could be referred. The cost was allotted in particular ways, it being advised that the cost of the prevention of infectious diseases should be borne equally by national and local funds. The scheme of the Special Committee of the London County Council made particular reference to the Metropolitan Asylums Board, as possessing an "anomalous constitution" under which it had "certainly performed its duties very efficiently." Further, it assumed that "the institutions of the Metropolitan Asylums Board and its highly competent staff would be transferred *en bloc* to the Council," it being at the same time "desirable that the Council should have the benefit of the experience in hospital management of the members of the Board." The Council and the Metropolitan Asylums Board have always worked in friendly coöperation, but the latter body is not appointed by direct election, and while the Council determines the amount of accommodation which it asks the Board to provide for the infectious sick and other purposes, the Board makes the provision without control by the Council of the expenditure, and the cost falls on the poor-rate. The expenditure is thus jointly determined by two bodies, neither of which is in the position to control it.

There certainly seems room here for change, and the design of the London County Council was referred by the Metropolitan Asylums Board to its General Purposes Committee, which was asked to report on the new proposals of the Council for the administration of the health services of London in so far as the constitution and duties of the Board were affected. This report[3] constitutes a reasoned decision on the part of the Metropolitan Asylums Board not to seek inclusion in the scheme of the London County Council. The report recognises the cordiality of the references made to the work of the Board, while pointing out that the Board might have been consulted before the scheme was drawn up. The essential criticism of the report of the Board upon the scheme of the London County Council is that it goes at the same time too far and not far enough. The General Purposes Committee of the Board affirms that such an authoritative inquiry as that proposed by the London County Council should be undertaken by the Government, and that London health administration should therein be considered as a whole. Extension of boundaries, the constitution of a Central Council with local legislative powers, and the relations between this legislative council and administrative departments should, it considers, be settled before important changes in individual branches of medical services are made. Pending such a Government inquiry it recommends that, as far as the Metropolitan Asylums Board is concerned, the present needs can be met by the London County Council and each borough council being afforded representation on the Board, whose name, it states, should be altered to some style conveying its duties. Certainly no one would guess from its name that the Board provides hospital accommodation for infectious sick as well as for certain classes of sick children, defectives, and tuberculosis subjects, while con-

[1] Council's Publication No. 1979. Price 1s. P. S. King and Son, Ltd., London.
[2] Report of the Local Government Committee appointed by the Minister of Reconstruction on the Transfer of Functions of Poor-law Authorities in England and Wales, Dec. 19th, 1917.
[3] Metropolitan Asylums Board: Report of the General Purposes Committee *re* Prospective Legislation, July 31st, 1920.

trolling an ambulance service and training ships. The report of the General Purposes Committee of the Metropolitan Asylums Board is an interesting criticism of the virtues and vices that may underlie centralisation. There are 50 residential institutions under the care of the Board, in which there may generally be found some 16,000 patients and a staff of 9000. The business of the Board—its works, finances, and supply arrangements—occupy the time and energy of 73 members, and it is by the personal interest of a large body of representatives giving a large proportion of their time to the special work that the welfare of the persons is secured. Absorption into the London County Council would probably result in a diminution of the personal services given by representatives for whom there would be no place on the County Council, and who might not desire or would have no opportunity to take part in the general work of the Council. This might be only a temporary occurrence, but we have here none the less a strong argument for devolution to be set against the known merits of centralisation, while we must remember that one of the merits of centralisation is not necessarily economy.

A Census of Cripples.

EVERY social worker in the large cities of this country is struck by the high proportion of physical defects among the children in the poorer areas. Some idea of the number of cripple children in London may be gained from a study of Dr. W. H. HAMER'S recent annual report as school medical officer for the metropolis. During the year 1919 the number of new cases deemed suitable to attend schools for the subjects of physical defects—termed in the report "P.D." schools—was 1184, namely 638 boys and 546 girls. And further analysis showed that 203 of these children were the victims of infantile paralysis, 52 of cerebral and 17 of other paralyses; 317 others were crippled as a result of non-pulmonary tuberculosis, 61 from congenital and 68 from post-natal deformities. No one supposes that these figures in any way cover the sum of deformed childish bodies in the metropolis. Rickety manifestations were actually found in over 3 per cent. of boys on entering the public elementary schools, and among older school-girls 2·7 presented deformities of some kind, chiefly spinal curvature. A few years ago Sir GEORGE NEWMAN estimated the total number of cripple children in England and Wales as between 30,000 and 35,000. The number is sure to be below the mark, for the lusty child is not a gentle critic of physical defect in his brothers and sisters, and the cripple child is liable to court obscurity.

It is therefore not a small service on the part of the recently formed Central Committee for the Care of Cripples that it is carrying out a house-to-house inquiry in certain typical rural and industrial areas, in order to obtain an accurate census of physical defect. A similar census taken in Cleveland, Ohio, in 1915–16, and another by BIESALSKI for the whole of Germany in 1906–08, revealed a hitherto unsuspected prevalence of disability. For the Cleveland inquiry, cripples were defined as persons handicapped from lack of the normal use of the skeleton or the skeletal muscles. The inquiry was carried out by a voluntary association employing unskilled visitors to make a house-to-house visitation, and experienced visitors to fill up the forms. An endeavour was made to ascertain in advance the number of cripples by asking for returns from associations engaged in health or social work, hospitals, ministers, and others; but the actual visiting led to the discovery of 65 per cent. more crippling than was known to all these agencies. In the German inquiry the definition of cripple was much more exhaustive—namely, "an invalid (in consequence of hereditary or acquired disorder of nerve, bone, or joint) deficient in the use of his body or limbs to an extent which makes it impossible for him in the social environment in which he finds himself to direct his remaining bodily and mental capacities towards the achievement of complete economic independence without the help of an institute which offers him combined facilities for medical treatment and education." The work was carried out by postal inquiry and covered the whole of Germany. Extremely full and detailed forms were issued, containing a large number of questions as to any possible crippling physical defect, the householder being legally compelled to furnish replies. A thorough analysis of the returns—excluding Bavaria, Baden, and Hesse, which did not reply in time—appeared in 1909 in book form.[1] The census now in progress at home is not only giving a similar basis on which to apply preventive and curative measures, but is awakening in the localities chosen an interest in their own quota of defect and the provision made for dealing with it. The honorary secretaries of this Committee are Miss BEASLEY, Mrs. TOWNSEND, and Mr. G. R. GIRDLESTONE, F.R.C.S., and any inquiries or information will be welcome at 20, Berkeley-street, London, W. 1. Naturally, action is not to be limited to ascertaining the extent of the problem, but the Committee has wisely decided not to interfere with the work of any existing agencies concerned with the care of cripples, but rather to assist and coördinate their efforts and to help any local authority or voluntary organisation desirous itself of making better provision for these children.

And there is a special reason for an effort on behalf of cripple children at this particular juncture. Experience gained during the war has brought out the value of expert orthopædic treatment for many injuries and physical disabilities that would formerly have been left unrelieved. Orthopædic departments of general hospitals and special orthopædic hospitals in Poor-law and other buildings have been dealing daily with scores of cripples and potential cripples, the result of the injuries of warfare. Some of these hospitals, with their teams of experts and admirable equipment, have been dismantled, and others will follow suit as the supply of war cripples in need of surgical help and training gradually diminishes. It would be lamentable if the opportunity were not utilised to tackle the problem of the child cripple. For it must be remembered that every cripple left without proper treatment and education means one more useless member of society, unable to earn an adequate livelihood, and yet for the most part with undiminished prospect of length of days. Before it is too late we urge on those who are at the focus of administration not to let slip an opportunity of turning the experience of war into the kindly fruits of peace, one which may never recur in our generation.

[1] Umfang und Art des jugendlichen Krüppeltums und der Krüppelfürsorge in Deutschland. Hamburg und Leipzig. Verlag von Leopold Voss.

Annotations.

"Ne quid nimis."

WORKING OUTPUT.

THE reports of the Industrial Fatigue Research Board as they increase in number are forming a special literature which is throwing light on the working of the human machine, and which cannot fail in time to display how health may be maintained and how early manifestations of disorder may be detected. The publications fall naturally into various groups as they deal with general topics or with this or that industry or group of industries. The most recent report,[1] one by Dr. H. M. Vernon, belongs to the former category and deals with the rate at which the effect, as measured by output, of shortening or lengthening hours of employment is manifested. The subject is one of considerable interest to-day, when hours of work are being curtailed in nearly every branch of industrial activity, and employers are eager to know whether to expect as large an output as before, and if so, how soon.

Dr. Vernon brings together data, some of which have been scattered through other publications referring to various trades, issued during several years. Information is thus drawn from the manufacture of steel, the tinplate industry, and the production of shells. Certain conclusions are arrived at as the result of comparing the statistical data quoted, conclusions which are of interest not only to the industrial economist, but also to the student of the metabolic activity of health. Dr. Vernon finds that when hours are shortened work at first proceeds for several weeks at the old rate—that is to say that there is a marked latent period, unless some incentive to more rapid work is placed before the workers. Then the workers, apparently quite unconsciously, begin to work faster as they find the energy at their disposal is greater than what they are expending. "They unconsciously speed up a little from time to time, and in that they suffer no over-fatigue in consequence, they get into the habit of working steadily at a higher level of speed. From this level they make further unconscious attempts to speed up, till they finally arrive at an approximate equilibrium of speed in relation to their hours of work." The increase continues to operate in heavy and complex processes, such as open-hearth steel melting, through as long a period as 12 months before a new and higher level is settled down to; in simpler operations, such as those of fuse-making, the new level may be attained in four months. Intermediate periods may be expected to elapse in the case of less heavy or less simple processes. In other words, the speed of human activity is a function of the weight of work and the period of employment, and there is a tendency for the expenditure of energy to be the same whether the hours be long or short. Dr. Vernon further points out that with long hours a certain proportion of the energy available is expended in "passive work" rather than in productive work, where passive work is held to include standing about doing nothing which in itself will finally cause fatigue; but when there are shorter hours this energy is saved and can be diverted into productive work. The result upon speed produced by lengthening hours is of even more practical importance to employers than that of shortening hours, owing to the use of overtime. Here Dr. Vernon finds little or no latent period before the rate of output accommodates itself to the longer hours. Any attempt to continue work at the pace suited to shorter hours would use up the available energy and leave none for the overtime hours unless reserves were called upon and the realms of over-fatigue invaded. We find here a scientific explanation of the saying, "overtime does not pay." The suggestion is put forward that when overtime becomes a necessity the additional hours should be spread evenly through the week, for example, it would be better to work nine hours each day instead of ten hours on alternate days. The resulting rate of work would then be that suited to a nine hour day; while by working ten hours on alternate days, the rate of work for every day of the week would become that suited to a ten hour day. Further, when overtime is no longer needed, a shorter period would elapse in recovering to an eight hour pace from a nine hour pace than from a ten hour pace. Evidence is also adduced to show that more time is lost on heavier work than on lighter work, and during longer hours than shorter hours. Thus women employed on rather heavy work lost 6·7 per cent. of time, as contrasted with women on rather light work, who lost 4·2 per cent.; while men employed for 63¼ hours per week lost 11·8 per cent. of time as contrasted with 6 per cent. when working 54 hours per week.

These facts suggest that there is a certain amount of energy at the daily disposal of the human machine; that there is a definite urge forward to expend this energy, an urge due to the anabolic activity of rest stimulating the katabolic activity of work; and that when the two balance one another a level of productive activity is maintained. Practice may increase productivity still further, but practice only consists in using energy economically, so that more things are made with the same exertion previously required for making fewer. Interest also centres on the fact that quicker work during shorter hours is associated with less lost time (represented by sickness), from which health appears to be a function of activity; and, from the viewpoint of health, there appears to be an optimum rate of activity for the human organism which seems to coincide with the optimum rate of production. We have here direct evidence of the way in which the work of the Industrial Fatigue Board bears upon two most important national needs—industrial productivity and health. The Board will indeed justify its existence if it is able to convince those who control the destinies of the industrial world that material wealth and individual health depend, so far as labour is concerned, on the same factors.

[1] The Speed of Adaptation of Output to Altered Hours of Work. By Dr. H. M. Vernon. Report No. 6. Industrial Fatigue Research Board. 1920. Pp. 33. 1s.

HERPES ZOSTER AND CHICKEN-POX.

CONSIDERABLE interest has always attached to the comparatively trivial ailment, herpes zoster or shingles, owing to the apparent connexion between its points of outbreak and the distribution of nerve branches, making it an obvious example of so-called trophic influence—the direct influence of nervous stimuli on cell nutrition. How this stimulus is brought into play in the case of herpes has remained obscure. It has been suggested that it represents a condition of the sensory side of the central nervous system closely resembling or identical with that which on the motor side constitutes acute anterior poliomyelitis, while the frequency of the outbreak of labial herpes as a concomitant of several different infective fevers—pneumonia, cerebro-spinal fever, coryza, and so forth—would tend to indicate that a variety of different poisons are equally capable of exciting the underlying nervous disturbance. Apart from the fact that the essential lesion of herpes is a simple vesicle, and so resembles the exanthem of chicken-pox, there is nothing at first sight to suggest any further connexion between the two conditions. Some curious instances have, however, been recorded in which infection with varicella has followed contact with a sufferer from herpes zoster, and the suggestion has seriously been made that the latter is in reality a localised varicellar eruption. The question is discussed in an interesting paper by Dr. Claude B. Ker, which appears in our present issue, with the practical conclusion that much stronger evidence than any at present brought forward will be needed to establish so novel an identification. With two such relatively common diseases coincidence is hard to eliminate. The cutaneous manifestation of chicken-pox may be reduced to a very few spots, even to one single vesicle, while the clinical phenomena are so slight as easily to escape notice—facts which render it difficult in any case to eliminate the possibility of some overlooked source of infection. Indeed, if the rash may be reduced to one

vesicle, it seems probable that cases exhibiting no eruption at all may from time to time occur, and without the typical rash they would be quite impossible to identify. On the other hand, it has been stated that there may exist a generalised form of herpes with scattered lesions closely resembling varicella. The distribution of the vesicles is typically along a particular nerve; but it is not unlikely that more than one nerve may be affected at the same time, giving rise to the simultaneous appearance of characteristic groups of vesicles in different parts of the body. Seeing that the eruption of chicken-pox may in some instances be localised in areas of special irritation, such cases might give rise to difficulties in diagnosis. Dr. Ker suggests that the question of the relationship between herpes and varicella is one in which the general practitioner is in the most favourable position for making observations, and hopes that some among our readers may contribute data towards a solution of the problem.

SECRET REMEDIES IN AMERICA.

THE Proprietary Medicines Bill has passed the Committee stage in the House of Lords, and this should turn English legislators to examine the success which has crowned the efforts of American reformers in a similar direction during the last 15 years. By the Federal Food and Drugs Act the sale of "misbranded" drugs became illegal. For five years it was held that a drug was misbranded if the description published on the package or label claimed a cure for diseases which in effect the drug did not cure. Later a decision of the Supreme Court confined this term to descriptions of composition and sources of origin. But during those five years many significant changes appeared on the labels of proprietary medicines. California syrup of figs, which has preserved its old description in Great Britain even to the present day, was known in America, from the passing of the Federal Act, as syrup of figs and elixir of senna. The American also is told that the mixture contains 6 per cent. of alcohol—a fact of which many Englishmen are doubtless in ignorance. In other cases the change was more radical. The labels on Dr. Kilmer's swamp root as sold in England continued to assert—

"It cures enlargement of prostate gland, seminal weakness, spermatorrhœa, generative debility, and general languor. Drives malarial poison out of the system ..... purifies the blood."

In America the following modest claim had to be substituted:—

"It will be found very beneficial in cases of debility."

Such illustrations are instructive as evidence of the possibilities of legislation in combating this dangerous trade. The Food and Drugs Act has been in force for nearly 15 years and there are still many fraudulent and thriving concerns in America, but with English coöperation their days are now numbered. The American federal authorities are also able to prosecute any firm which can be shown to be "conducting a scheme for obtaining money through the mails by means of false and fraudulent pretences, representations, and promises." Against such firms a fraud order is issued and the business is closed down. In a leading article which appeared in THE LANCET of June 12th (p. 1274), before the present Bill was introduced, we set out the amazing story of the "Medical Mail Order Frauds" in America, coupling the toast with the name of sargol.

More than any other single organisation the American Medical Association have been responsible for the advances which have been made. Their propaganda began when in the year 1905 they reprinted in booklet form a series of articles which had been appearing in *Collier's*. That was the beginning of their public campaign, although for some years previously they had directed their efforts to eliminating certain proprietary articles from the armamentarium of American practitioners. Since 1905 the journal of the Association has published many articles exposing various nostrums and many of these articles have been reprinted. The earlier ones have also been collected into book form.[1] The Association maintains a Council of Pharmacy and Chemistry, which decides not only the therapeutic merits of the advertised prescriptions, but even the more delicate question of whether a harmless concoction is being sold at too high a price. Naturally, a chemical laboratory is kept busy analysing and researching into the value of various orthodox and unorthodox remedies. In the matter of propaganda—for which a special department has been created—they are careful to insist that their work is educational and not punitive. Their office is richly furnished with references and cross references, stored by the card-index system, and has become a clearing house of information on medical frauds of all kinds. The poster has of late been used with success for popular education. A catalogue of these posters is sent gratis on application, as well as a list of the publications of the department.

A GREAT GIFT.

THE example set some time ago by the Shell Company, which gave £250,000 to Cambridge University for the general improvement of scientific teaching and training, with no conditions attached to the gift, has been followed by the British Dyestuff Corporation, which has given a large sum to the Universities of Manchester and Oxford for chemical research. At an extraordinary meeting of the shareholders of Messrs. Brunner, Mond, and Co. on August 4th the following resolution was carried in the face of a small but energetic number of shareholders:—

"That the directors be and they are hereby authorised to distribute to such universities or other scientific institutions in the United Kingdom as they may select, for the furtherance of scientific education and research, the sum of £100,000 out of investment surplus reserve account."

This was the second attempt to persuade the shareholders to accede to the unanimous recommendation of the directors. The chairman gave an interesting analysis of what such an apparently—and actually—large gift for the promotion of scientific education, training, and research really meant when set forth in cold economic business monetary calculation. "This is how it works out," said the persuasive chairman, "on such a huge capital as that of Brunner, Mond, and Co. If the £100,000 was divided in cash it would amount to 2½*d.* a share gross, subject to income-tax. If it were left in the business and earned 10 per cent. it would earn ¼*d.* a share in interest, less tax." The example of these great business firms ought to be taken to heart by others who have lost nothing through the war. In 1911–12 the State aid received by the German universities was £1,220,000. All British universities are suffering from want of funds, and donations to them evoke a feeling of gratitude to the donors. Further, these gifts are national investments. But they should not relieve Government of its duty towards the maintenance and advancement of scientific education in this country, which ought not to be left to haphazard windfalls, subject to the vicissitudes of trade and the goodwill of shareholders in successful chemical and engineering combines. Even now, with all the trumpeting, advertising, and propaganda work, wealthy Lancashire has only subscribed £212,000 out of the total of £500,000 asked for to enable the University of Manchester to keep financially abreast of the times.

THE FUTURE OF METROPOLITAN WATER-SUPPLY.

THE report recently issued of the Departmental Committee appointed to inquire into the provisions and effect of the Metropolis Water Act, 1902, should the recommendations be adopted, affects the consumer's interests in many ways. Apart from his pocket, questions of health may arise with the suggestion of a limited supply. Briefly, the Committee considers in regard to administrative personnel that a reduction in the number of members of the Water Board

[1] Nostrums and Quackery. Chicago: American Medical Association Press. Second edition. 1912. $1.

would add to its efficiency, and further recommends that the Board should appoint a general manager, so as to secure a coördination of general policy. Amongst other things, it concludes that the charges fixed under the Act of 1907 should be increased. It is suggested that the maximum rate for domestic supplies should be raised from 5 to 10 per cent., but no higher rate than 7½ per cent. is to be imposed without the authority of the Ministry of Health. The Committee, further, does not consider that there should be a public water rate as such; but though a deficiency rate should not normally be necessary, the power to levy such a rate should be retained. It is considered that the provision for the storage of water which the Water Board is making is, in present circumstances, not extravagant, while at the same time the Committee is impressed with the large amount of the demand, and expresses the hope that the need for economy in consumption will receive public attention. Incidentally a well-deserved tribute is paid to the services of the Water Examination Department of the Board, under the guidance of Sir Alexander Houston, whose work in keeping a close watch on the quality of the supply and its maintenance and economic working is well recognised. Finally, the Committee does not think that it is necessary to continue, when the office becomes vacant, the appointment of a water examiner by the Ministry of Health. This appointment was subject to the authority of the Board of Trade, and afterwards the Local Government Board, and the stipend was paid by the various companies concerned before an amalgamation was effected. It is debatable whether the policy of charging for water service on rateable value is sound, but, of course, it is based on a pre-charge, which is not the case with gas or electricity. The meter, after all, is a measure of the consumer's usage.

ANTITUBERCULOUS VACCINATION.

AN interesting communication[1] was made to the Royal Academy of Science at Bologna by Professor G. Martinotti last May, in which he described the beneficial effects obtained by a vaccine prepared by him on somewhat new lines. This vaccine is neither a tuberculin nor a serum, but contains, among other substances, a protein derived from cultures of tubercle bacilli, which acts as an antigen and is capable of producing under favourable conditions an active immunisation with respect to tuberculosis. Ordinary tuberculin is a substance eminently toxic; in fact, it contains the toxins elaborated by the tubercle bacillus on an artificial substratum totally different from that in which the bacillus develops in the animal organism. Moreover, the chemical processes by which it is prepared are sufficiently powerful to change in a marked degree organic compounds, even if as resistant as the toxins of tuberculin seem to be. According to Professor Martinotti, the scope of immuno-therapy should not be to kill the tubercle bacilli or to neutralise their toxins, but to render the body elements resistant to their attacks and frustrate their action. It is known that the tubercle bacilli act by stimulating the body cells to proliferate. This proliferation, caused by an abnormal stimulus, does not, however, lead to the formation of other normal cells as under ordinary conditions, but of special elements, the epithelioid cells, fatally destined to perish. Once the cell has come under the influence of this special stimulus it is lost; the epithelioid cells born from it will fall into necrosis either by the action of the tuberculous toxins accumulated by bacilli which have multiplied in situ, or from insufficient nutrition due to the fact that the tuberculous process involves the blood-vessels and renders them impervious. In this necrotic detritus the tubercle bacilli will multiply, act on the contiguous cells, and form a tuberculous focus capable, by a repetition of the process, of extending throughout an entire organ, ultimately spreading throughout the whole body, if it be not in a state to oppose the necessary defences. If, on the other hand, the normal cells do not respond to this abnormal stimulus and do not proliferate, the tubercle bacilli can remain in the body, live in the organic juices, multiply and pour into the organism the products of their limited vital activity, and hence do some harm to the organism which harbours them; but they will not be able to exert their special pathogenic activity and will not lead to the development of a true tuberculous process with all its consequences and complications. In other words, they will no longer be parasites, but will become saprophytes. This is what happens in latent tuberculous infection; many individuals, especially in populous centres, carry in their organs living and virulent tubercle bacilli which remain for a long time inactive up to a certain point. But they exert a sinister influence on organic evolution by preparing that "hypoplastic constitution" which forms the soil propitious to the development of the tuberculous process. In immunising against tuberculosis it is sought not to kill the bacilli but to render them inoffensive and saprophytic by reinforcing the resistance of the body elements, so transforming an active tuberculosis into a latent. But it must be remembered that the bacilli remain alive and virulent for a long period, and it is only after years under the most favourable conditions that a complete cure can be spoken of. In fact, in the generality of cases, the cure may be said to be provisional, and the immunising vaccination must be repeated from time to time. Over a hundred surgical cases treated by this method have been published by Professor Remedi, director of the Surgical Clinic at Siena, and a similar publication from the Medical Clinic at Modena is stated by Professor Martinotti to be already in the press. We look forward with interest to further information.

[1] La Riforma Medica, July 3rd, 1920.

"WHAT EVERY MAN SHOULD KNOW."

WE have already noted on several occasions the decision of the Portsmouth Council to popularise by official action the methods of venereal prevention among the male population of the borough. The following is the text of the notice now issued widely by order of the Portsmouth Health Committee, and signed by Dr. A. Mearns Fraser as medical officer of health:—

1. Venereal Diseases (i.e., Syphilis or "Pox," and Gonorrhœa or "Clap") are the common result of promiscuous sexual intercourse.

2. Venereal diseases not only result in immediate suffering but are often the cause of early death. Worst of all they are the cause of blind, diseased and deformed children being born into the world, and of life-long suffering to innocent wives.

3. To avoid venereal disease the only ABSOLUTELY safe course, the right and manly course, is to avoid fornication. Male chastity, although it demands the exercise of self-discipline, is quite consistent with perfect health.

4. If any man indulges in promiscuous sexual intercourse it is his bounden duty, in order to avoid disease which he may pass on to innocent people, to adopt the following simple measures, which are the best known to medical science for preventing disease after exposure to infection.

5. After exposure to infection he should at once retire to some convenient place, wet a piece of cotton-wool with a SOLUTION OF PERMANGANATE OF POTASH OR CONDY'S FLUID and thoroughly swab the male organ—see that every part is wetted with the solution. It is of the utmost importance that this should be done *as soon as possible* after exposure to infection. (The strength of the solution of permanganate of potash is 1–1000; it can be made by dissolving in a glass of water as much of permanganate of potash crystals as will cover a sixpence.)

6. The above method of prevention of disease is based upon the fact that venereal diseases are caused by living germs which after exposure to infection lie on the surface of the skin, and the *prompt* application of the above solution (or, indeed, of any other effective disinfectant) destroys them before they can gain access to the system and set up disease.

7. All men are earnestly advised to abstain from the sin of promiscuous sexual intercourse. If they neglect this advice they are besought carefully to observe the above instructions. To fail in this will involve suffering in the future upon innocent women and children.

[Sentences numbered 2, 3, and 7 are printed in red ink, so that they attract the eye at the first glance; 2 and 7 are, in addition, printed in bolder type.]

Men are advised on the notice to read a leaflet, extending the teaching contained in the notice, and obtainable on application to the Health Department at the Town Hall.

THE CARRIER IN FOOD POISONING.

THE possibility of food infection by contact with a carrier seems to have been well established in a remarkable case of food poisoning reported from Lambeth last week. So far it has been assumed without rigid proof that the Gaertner group infections, the cause of food-poisoning outbreaks, are of human origin, the food being infected with pathogenic Gaertner bacilli from a human source, either an actual case of paratyphoid fever or a carrier case. The subject is ably summarised by Dr. William G. Savage in his recently published book on "Food Poisoning and Food Infections," reviewed in our issue of July 10th last. The circumstances in this case at Lambeth, according to the evidence of Dr. Joseph Priestley, the medical officer of health, are as follows. The outbreak was confined to one house in which ten persons were living, all of whom were affected. One (Mr. K——e) died, and Dr. B. H. Spilsbury said at the inquest that death was due to syncope from acute enteritis. We understand that the other sufferers are now convalescent. Dr. Priestley ascertained that on Saturday a stew of steak and liver had been prepared and consumed, the gravy being saved until the following day and warmed up with a Yorkshire pudding. On the previous Thursday the wife of the landlord (Mrs. H——y) who undertook the preparation of the food, was taken ill, and the climax of her illness was reached on Saturday night, although she continued to attend to her household duties. Dr. Priestley expressed no doubt that the source of infection of all persons was the gravy from the liver, which was itself sound. The outstanding feature of the case, in fact, is that the person who prepared the food suffered from the same disease as the others two days before they were taken ill, and instead of going to bed she did the cooking for the whole of the household for two days, the result being that the liver gravy was infected. Dr. Priestley was inclined strongly to the conclusion that this person was a carrier of the bacillus, who having previously suffered from food poisoning had during culinary operations sown that bacillus in the gravy of the repast. This evidence, we learn, is amply supported by subsequent bacteriological investigation, the causative bacillus having been found present in the organs of the deceased and in the blood of those who have survived.

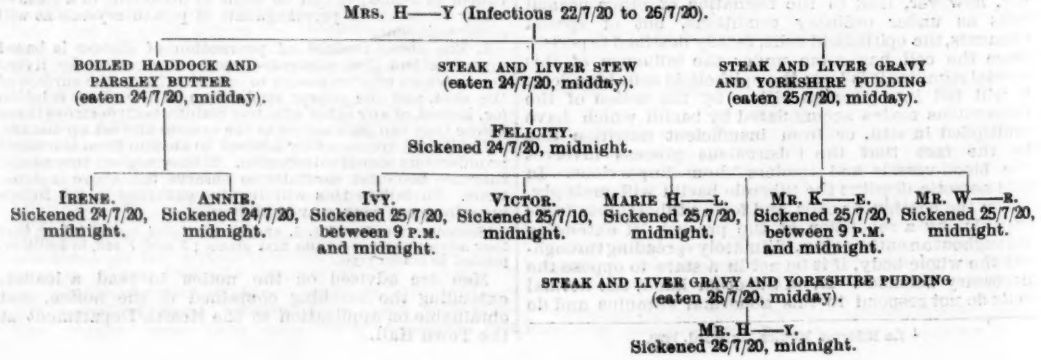
According to the results obtained at the Lister Institute the bacillus proved to be the "mutton" type of the large paratyphoid B group which has been comparatively recently described and named, including a large number of the strains formerly referred to as the *Bacillus aertrycke* or *suipestifer*. The coroner, Mr. S. Ingleby Oddie, brought in a verdict of "Death from gastro-enteritis by food-poisoning misadventure" in accordance with the evidence given by Dr. Priestley. The accompanying diagram furnished by him gives graphically the particulars of the outbreak. The case is a remarkable one, and, if rare, somewhat disturbing in regard to the risks involved in kitchen régime.

SIMPLE ULCERATION OF THE GENITALIA.

Dr. Noah E. Aronstam,[1] of Detroit, classifies the varieties of simple or non-specific ulcers of the genitals as follows: (1) The herpetic ulcer; (2) the gonococcic erosion; (3) erosion of the sebaceous follicles; (4) the traumatic abrasion or erosion; (5) the diabetic ulcer; (6) the tuberculous ulcer. Herpetic vesicles, either spontaneously or as the result of irritating applications, may become abraded, and the coalescence of individual erosions may give rise to a large and extensive ulcer. The diagnosis is established by the co-existence of unruptured vesicles side by side with the ulcers. Treatment consists in the application of dry dressings or the use of simple dusting powders. Gonococcic erosions of the glans and prepuce are apt to arise in the course of gonorrhœa with an elongated and narrow prepuce and may form the starting point of venereal warts. Gonococci are usually demonstrable on microscopic examination. Treatment consists in the use of mild antiseptic solutions, but occasionally circumcision is necessary. Erosion of the sebaceous follicles with which the skin of the genitals is profusely supplied is mainly due to staphylococci and is frequently met with in those who work in oil or paraffin. Small local abscesses occur within the sebaceous follicles and rupture spontaneously, leaving a crateriform opening. Caustic applications will produce a marginal or peripheral induration which may be mistaken for that accompanying a primary syphilitic lesion. Treatment consists in the application of moist dressings or solutions of lysol or bichloride. Traumatic abrasions or erosions may sometimes arise from the use of rough underwear or from excessive moisture of the parts caused by perspiration in hot weather. The lesions are very superficial, and rapidly heal up on the application of ordinary dusting powder. The diabetic ulcer is usually very extensive and may assume a serpiginous and phagedænic appearance. It differs from chancroid by never presenting a worm-eaten, undermined character and being as a rule uniocular, but resembles it in healing with great difficulty. As in all doubtful ulcers of the genitals, a urinary examination and a serological test should be performed. As a rule, in such extensive lesions sugar will be found in varying proportions. Local treatment seems to be of little avail, so that an attempt should be made to improve the general condition by a strict regimen. Tuberculous ulceration of the genitals is very rare and is usually met with in early youth. Its usual sites are the glans and dorsal surface of the penis. Phagedæna is characteristic: the ulceration is deep and the margins are indurated. In spite of repeated examination the pus may appear sterile until suddenly tubercle bacilli are discovered. Treatment in such cases is not promising, radiotherapy and hypodermic injections of tuberculin having been used with indifferent results. Dr. Aronstam concludes by drawing attention to the possibility of malignant changes supervening in these chronic ulcers, especially in advanced middle age.

[1] The Urologic and Cutaneous Review, July, 1920.

THE HISTORY OF THE CARRIER CASES.


MRS. H——Y (Infectious 22/7/20 to 26/7/20).
BOILED HADDOCK AND PARSLEY BUTTER (eaten 24/7/20, midday).
STEAK AND LIVER STEW (eaten 24/7/20, midday).
STEAK AND LIVER GRAVY AND YORKSHIRE PUDDING (eaten 25/7/20, midday).
FELICITY. Sickened 24/7/20, midnight.
IRENE. Sickened 24/7/20, midnight.
ANNIE. Sickened 24/7/20, midnight.
IVY. Sickened 25/7/20, between 9 P.M. and midnight.
VICTOR. Sickened 25/7/10, midnight.
MARIE H——L. Sickened 25/7/20, midnight.
MR. K——E. Sickened 25/7/20, between 9 P.M. and midnight.
MR. W——R. Sickened 25/7/20, midnight.
STEAK AND LIVER GRAVY AND YORKSHIRE PUDDING (eaten 25/7/20, midday).
MR. H——Y. Sickened 26/7/20, midnight.

THE THERAPEUTIC USE OF OXYGEN.

Dr. R. D. Rudolf, of Toronto, has published a useful paper[1] expounding the present position of oxygen therapy. For a healthy person the 20 per cent. of oxygen in ordinary air is more than sufficient to saturate the hæmoglobin and supply the necessary partial pressure in the plasma (about one-fortieth of that in the hæmoglobin), while the percentage of oxygen in the air may be reduced to 14 per cent. without causing any distress. Thus the air contains a higher percentage than is needed by a healthy person when resting. But on exertion he will soon become breathless and then, as shown by Dr. Leonard Hill, he can do more work without distress when breathing an atmospere artificially enriched with oxygen. As Meltzer puts it, the difference between the 14 per cent. which is all the oxygen required when at rest and the 20 per cent. is a "factor of safety." While this is sufficient for the demands of ordinary exertion, it is not for emergencies. A man suffering from disease interfering with respiration may be likened to a healthy one undergoing severe exertion. Moreover, at high altitudes the partial pressure of oxygen may be less than that of an atmosphere containing 14 per cent. of oxygen, and there is no margin of safety. The least exertion may bring on dyspnœa. At a still higher altitude, as in the case of airmen, dyspnœa may come on without exertion. Again, it has been found that at altitudes of 6000 feet and over cases of pneumonia do badly, the factor of safety being now absent. Hence, at Cripple Creek (altitude 10,000 feet) in the Rocky Mountains cases of pneumonia are put on the train and sent down to the prairie level. Dr. J. S. Haldane has applied the term anoxæmia to "the condition when the rate of supply of oxygen is insufficient for the normal carrying on of life." Its causes are four: (1) defective saturation of the arterial blood with oxygen; (2) slowing of the circulation; (3) defective proportion of available hæmoglobin in the blood; (4) alteration of the dissociation curve of the oxyhæmoglobin, so that this gives off its oxygen less easily than usual. Examples of the first cause are decrease of oxygen pressure in the inspired air or interference with the passage of air to the blood. Slowing of the circulation will tend to anoxæmia by allowing the blood to dwell too long in contact with the tissues. Anæmia means want of hæmoglobin in the blood, and poisoning with carbon monoxide, nitrites, or arseniuretted hydrogen will prevent the hæmoglobin from carrying oxygen. Bohr, of Copenhagen, has shown that, if the carbonic acid in the blood be lowered, the hæmoglobin will not part with its oxygen. As to the relation of anoxæmia to cyanosis, it may be said that cyanosis always means anoxæmia, but there may be anoxæmia without cyanosis, as in carbon-monoxide poisoning when the blood is cherry red, and yet the patient may die from anoxæmia. Again, when carbonic acid is deficient, the tissues may suffer from anoxæmia, and yet the blood be red with oxyhæmoglobin, with which it will not part with its oxygen (according to Bohr's law). It should be remembered that it is the amount of oxygen in the blood plasma which counts. Normally it is about 0·35 c.cm. in 100 c.cm. It is used up by the tissues and replenished from the hæmoglobin. But by increasing the oxygen in the inspired air the amount in the plasma may be raised to 3 c.cm. in 100 c.cm. Anoxæmia, which is shown clinically by cyanosis, is damaging to the tissues, and therefore should be relieved if possible. As Dr. Haldane says, "Cyanosis may always be taken as an indication that oxygen inhalation should be considered." There are two kinds of cyanosis: (1) the leaden colour of the skin, often seen in acute respiratory conditions, when the hæmoglobin is reduced and yet the veins are not over full, and (2) the blue colour of the mucous membranes when the veins are distended. In the latter venesection, followed, if necessary, by oxygen inhalation, may be called for. The common way of administering oxygen with a funnel held near the face connected with the cylinder Dr. Rudolf considers useless. Meltzer has shown that it is not possible thus to raise the percentage of oxygen in the inspired air by more than 2 per cent. Moreover, the funnel gives the dyspnœic patient a sense of suffocation. Dr. Rudolf makes the same objection to Haldane's apparatus, which involves placing a mask over the patient's face, and also to Leonard Hill's. He recommends as a much better method, one which has been used extensively in the war—administering the oxygen through a soft rubber tube inserted into one nostril and held in position by a strip of strapping. It is a wasteful method, but very efficient. Its efficacy can be increased if an attendant closes the opposite nostril during each inspiration. Under this treatment patients cyanosed from influenzal pneumonia, though treated in the open air, improved visibly in a few minutes. Not only did the cyanosis lessen or disappear, but the breathing became slower and deeper.

[1] American Journal of the Medical Sciences, July 1920.

THE UNIVERSITY CHAIR OF RADIOLOGY.

THE Senate of London University invites applications before Sept. 23rd for the post of Professor of Radiology, tenable at the Middlesex Hospital Medical School, with a salary of £1000 a year. London schools have been honourably associated with pioneer work in the application of electric waves to the needs of suffering humanity. It was John Birch, surgeon to St. Thomas's Hospital, who founded an electrical department there towards the end of the eighteenth century and carried it on nearly single-handed for a period of 21 years. His essay on the Medical Applications of Electricity, published in 1802, had a wide circulation in this and other countries, being translated into Italian and Russian. A century later the realisation by Wilhelm Conrad Röntgen of Hamlet's promise to his mother—

> You go not, till I set you up a glass
> Where you may see the inmost part of you—

was taken up with alacrity by the authorities of the Middlesex Hospital, who appointed a physicist on their staff, and coördinated his work with that of the Cancer Research Laboratories, and later with the Bland-Sutton Institute of Pathology. Hence the names of Sidney Russ, W. S. Lazarus-Barlow, the late C. R. C. Lyster, H. A. Colwell, and others stand for an application of electrical method to medicine which cannot fail of its fruit in due time. The effect in animals of X ray irradiation of the thymus, which becomes thereby reduced to a mere fibro-adipose residuum; the selective destruction by the rays of spermatocytes and spermatogonia; the action of radium in diminishing the power of transmission in cancer cells: these have been among the objects of investigation at the Middlesex Hospital. With this tradition we may feel assured that the University Professorship, the first of its kind, will attract some highly capable expert whose inclinations tend towards research rather than to private practice. Provided adequate assistance is afforded to help in the routine X ray work, the opportunities offered for research at this hospital should prove more than adequate. The holder of such a post might well achieve work of great practical value, not only to the science of radiology, but also to various departments of medicine and surgery. It is not too much perhaps to hope that a specialist with original ideas might stimulate useful team-work in conjunction with the clinical staff on one side and with the chair of physics on the other.

UNIVERSITY OF PARIS: FACULTY OF MEDICINE.—A revision course on the Application of Laboratory Methods to Diagnosis is to be held from Sept. 24th to Oct. 12th in the medical clinic of the Hôtel-Dieu (Professor A. Gilbert and Professor Maurice Villaret). The instruction will include 31 lessons of an essentially practical nature, time being left free each day for visits to hospital practice. The course includes a study-journey from Sept. 25th–29th to Evian and the principal watering places of Savoy—St. Gervais, Aix-les-Bains, &c.; it is open to French and English qualified men, as well as to matriculated students, and a certificate will be issued to each of those who take part in it. The laboratory fee is 150 francs. Details of the journey may be obtained from Dr. Paul Descomps, Clinique médicale, Hôtel-Dieu, Paris.

PROVISION OF EXPERT MEDICAL AND SURGICAL TREATMENT.[1]

BY A. H. BYGOTT, M.D. LOND., D.P.H.,
BARRISTER-AT-LAW; COUNTY MEDICAL OFFICER OF HEALTH FOR WEST SUFFOLK.

THERE is no line of demarcation between preventive and curative medicine. There is one science of medicine whose duty is to attack disease whenever it appears, and although the medical officer of health pays special attention to the environment of the individual, yet the large amount of treatment provided by health authorities during the last few years gives most medical officers of health a title to speak on this subject from personal experience. Moreover, because he is not engaged in a competitive monetary struggle, an M.O.H. may possess a clearer vision of what the public needs than does the practising physician. It is of vital necessity for this country that we should reconsider many phases of our social machinery, as the health and working capacity of its citizens are its greatest assets. Unfortunately, whilst realising that housing, industrial, and economic conditions of the workpeople may fairly claim our first attention, with a view to preventing the necessity for treatment at all, in the present economic condition of the country large reforms in these matters must take a considerable amount of time to evolve. Twelve years' medical inspection of school children, the attention that has been paid within the last few years to maternal and infant welfare, and especially the results of the examination of most of the adult manhood during the war, show that there are in this country a large number of people needing adequate medical treatment who are not getting it. This leads to the loss of a considerable amount of working capacity which the State badly needs, and tends to dwarf the minds of thousands of people, rendering them discontented and dangerous to the State; a C 3 body is often associated with a C 3 mind. Many keen young men returning from the different theatres of war are profoundly dissatisfied with the present state of things, and wish that medical service shall be placed on a dignified and business-like basis. This volume of young vigorous thought, added to the considered opinions of many of the older members of the medical profession who have fought unsuccessfully against these adverse conditions for many years, needs to be organised and directed so as to secure the attention it deserves.

It is now acknowledged that the primary necessity for getting effective improvement is a greater enlightenment of public opinion. It must be remembered that we have only had a national system of elementary education for about 50 years; that knowledge of anæsthetics is only some 70 years old, that of antiseptics 50, and that of the bacterial causes of disease only some 35 years old; we have not really had much time to build the solid edifice of first-rate medical service that we need. We have left behind us the day when Dr. Abernethy made that scathing indictment of his professional colleagues, that they put drugs of which they knew nothing into bodies of which they knew less. The chief work of the practitioner of to-day is to recognise any failure from health as soon as possible, and to place the patient under proper conditions for recovery, with the assistance of skilled technique, and special surroundings such as country environment where these are indicated. The day of the apothecary who seizes upon some prominent symptom of disease, often a valuable danger signal, and covers it up and masks it as quickly as possible with some soothing drug, is drawing to a close. Doctors were never able to do so much for their patients as they can now, but the work must be done in an entirely different way to that adopted 30 years ago. The first need for expert medical and surgical services is that they shall be up to date, capable of progressing, and that all the lessons learnt in the war as to handling and treating the sick shall be utilised to their fullest extent.

[1] A paper read before the Society of Medical Officers of Health in London on May 28th, 1920.

The Need for Help from the Public.

When these questions are brought forward for discussion there is often a tendency on the part of the public to regard them as too difficult and technical to be understood, suggesting that they should be left to the medical profession, and there seems to be a widespread view that there is some medical authority behind the scenes, which is responsible for improvement in medical matters. This vague authority does not exist and any improvements in organisation must come from the public themselves. It is not possible for the man in the street to decide whether ipecacuanha or squills is the better drug to use in some particular case of pulmonary disease, but he may be able to express a better opinion than some medical men, who do not take a broad view of such questions, as to whether hospitals should be situated in densely populated areas in large towns as at present; or whether most of the work there should, with our better means of transport, be done under rural surroundings, the present hospital becoming a casualty station. He should consider such questions as to whether it is sound economics for probably nine-tenths of the surgical work in this country to be done in hospitals without payment to the medical staff, so that the burden of the other tenth is laid upon one section of the community only; this procedure presses very hardly upon those persons just outside the hospital class if an important operation is required for the bread-winner, who may be leaving his dependents to the mercy of the world. These are problems capable of being solved by ordinary intelligent people, and the knowledge that the engineer has of the specialisation of function by craftsmen in the engineering trade, or that of the schoolmaster, working in a school where different subjects are taught by different people having special knowledge of them beyond that of a good general education, may well be applied to such questions as this.

Considering that specialised treatment as we know it has been built up within the last 70 years, and a great deal of the technique comparatively recently, we have first of all to consider what responsibility the patient has in the matter. He would be much more likely to seek assistance early if he were better educated in the knowledge of the incidence of disease so that he might consult a doctor when certain signs, which may lead to serious consequences, first appear. At the same time, he must be taught that no treatment can hope to be successful unless the patient coöperates in his own cure. The practitioner and district nurse form the first line of medical defence and no provision of expert services can be successful unless it gives the fullest scope to the activities of these persons. The practitioner must be provided with proper working conditions, so that he shall see his patient in good surroundings, well lighted with a good light, supplied with proper instruments for necessary examinations, and more especially with attendants who will be able to keep his equipment in order, and assist him where possible in the responsible work which he has to do. Especially in rural districts, the combination of the practitioner and district nurse should be much more intimate than it is now. The present system, by which a practitioner at the end of an exhausting day's work usually sees most of the patients in his surgery, without any regard to his own excessive industrial fatigue, needs modification at once.

Improvement of Hospital Services and Statistics.

As the bulk of expert medical treatment is provided in hospitals, the consideration of the present condition of these institutions and suggestions as to how the hospital services in the country may be improved must form the most important part of this paper. Hospitals were primarily intended for the sick poor, and a perusal of the records of the Hotel Dieu in Paris, where many people were crowded together in very large beds, shows that at one period of our history very little care was given to really efficient treatment. A very interesting life history of Lord Lister by Dr. Wrench,

showing the fight against enormous odds which he waged 50 years ago to introduce antiseptic surgery in England, shows that the state of the London and provincial hospital then left much to be desired.

Unfortunately, we have not improved as much as we ought. The hospital of to-day is still regarded too much as a charitable institution, and too little as the centre of medical life in the area, in which the largest amount of expert medical work in this country is done. For instance, the ordinary hospital report published to the subscribers each year contains much information as to the financial condition of the institution, and records the generosity of the donors, but the statistics given as to the nature of the work done is very unsatisfactory to the medical officer of health who wishes for exact and reliable information as to the incidence and methods of dealing with disease in his area. This has been specially commented upon by the Royal Commission on Venereal Disease, who suggested that hospitals maintained by voluntary subscriptions should supply more information on these subjects than they do at the present. In the county of West Suffolk, with a population of 116,000, 150 to 200 deaths from cancer occur each year; no details are given in the report of the County Hospital as to the number of such cases dealt with. A house surgeon kindly informed me two years ago that, including the removal of small growths of a suspicious nature, about 30 operations for cancer were performed there every year. As most of the more populous areas are on the edges of this county, and these inhabitants obtain help from general hospitals in other counties, it is quite impossible to ascertain from these sources how many of the cancer cases in the county are dealt with by operation. The house surgeon also stated that about 30 cases were operated on for diseased tonsils and adenoids, and about 80 patients per annum suffered from appendicitis; the population served is probably about 50,000, and the number of beds is nominally 100, of which from 60 to 70 are usually occupied.

Such is the responsible position of the local hospital that it would be reasonable for the Government to require that each hospital should publish a few statistics showing the nature of the work done there, so that the public may know how it fulfils its function as the main sources of supply of the highest forms of medical service in that locality. Some hospitals do not seem to realise this responsibility, and fail to appreciate what may be the plight of the patients whose admission they may be compelled to defer or refuse. In London some acute cases are referred from hospital to hospital in a manner likely to prejudice their recovery and cause them unnecessary suffering, and no responsible person ever knows or seems to concern themselves as to what eventually becomes of them. A practitioner recently told me that two shop-girls in the county for whose admission to a London hospital he had arranged some months ago were still at work and waiting for a bed, one with severe metrorrhagia and uterine fibroids and the other with ovarian disease. We ought to visualise the position of these girls, two only out of an army of sufferers, going to their work day by day, dreading these operations, sometimes hardly able to carry on. It is our duty to improve this system at the earliest possible moment.

General and Special Hospitals.—The Letter System.

The size of the hospitals varies considerably and their distribution in the country is very irregular; 15 counties have one or more with over 200 beds, 20 have some with 100 to 200, eight have hospitals with 50 to 100, seven with 25 to 50, and nine with a smaller number of beds. Specialisation and methods of staffing vary considerably. Considering the two kinds of institution, general and special, and having attended and seen the work done in both, I can affirm that the use of special hospitals shall be discouraged as much as possible, by arranging special departments in the general hospitals. Specialities tend to overlap very considerably, and it is a great advantage for the patient to be transferred to another department in the same institution rather than to be sent somewhere else.

The method of admission to these institutions may be either absolutely free, that is to say, that any person may claim their assistance, or that their services may be given in return for a recommendation from a subscriber known as the subscriber's letter. This usually means that in return for a subscription of £1 1s., a subscriber is entitled to send six persons for out-patient treatment, and for £2 2s., a month or six weeks' residence in the institution is allowed for an in-patient nominated by him. This system varies considerably in different places, and is gradually dying out in the larger London and provincial hospitals. These letters may be handed over to clergymen and other social workers, and they are a source through which patients are admitted to these hospitals, except in certain emergency cases, and even then letters are sometimes asked for whilst the emergency is being dealt with. The letter system is a very bad one; it deprives many people of adequate hospital service, and others who accept it feel there is a certain loss of dignity in doing so. Bishops once had the right to license women to practise midwifery; this function has now been placed in other hands, and it would be very much better for patients to seek the hospital service on their own initiative, or recommended by the doctor, rather than through a recommendation from the clergyman.

Deferred Admissions.

The number of beds in nearly all hospitals is very inadequate, and a selection of the patients has to be made. Most hospitals have a list of deferred admissions. This does not always secure that those cases most in need of treatment are the first to be selected; the protégés of the friends of the hospital may come first, and during the war, when the hospital beds at the disposal of the civil population were seriously cut down, it seemed very dreadful for the maidservant of some wealthy subscriber to be given precedence of admission for some trivial ailment over some unfortunate woman suffering from cancer whose life was at stake. When a serious operation is decided upon it is only humane to get it over as soon as possible, so that patients and their friends may be spared the anxiety of expectation. A long waiting list should be considered a disgrace to us. In some instances visiting medical officers admit patients to the beds, and as they are engaged in some form or other of medical practice their own patients may receive preference. In one case this system has been carried so far that an honorary surgeon in a large hospital has allotted to him about 40 beds, 20 of which are female. Where the patients are supposed to be admitted through a resident officer of the hospital, to be selected especially from the out-patients and other sources, the female beds at any rate are almost entirely filled by women recommended through the surgeon himself either as the result of a private consultation or at the request of some practitioner who has asked him to secure their admission. A country practitioner recently said, "I never send my patients to the local hospital; if they want admission to a hospital, I ask —— to deal with the case, and he always takes them into his hospital very soon."

The equipment of hospitals varies very considerably and in many institutions whose names are household words, owing to the lack of money there remains room for considerable improvement. In one important London hospital I recently found that one bathroom had to supply the needs of two large wards for male and female patients, so that it had to be used for each sex on alternative nights. Beds may be placed nearer to each other than is desirable, and there may be a lack of instruments and proper equipment. The staffing varies considerably. Specialisation, first attempted in London hospitals, was not originally carried to the point it is now, but in many large provincial hospitals it is still far from thorough.

The Junior Staff.

It is instructive at this point to note the way in which a man reaches the rank of a full surgeon in a London or provincial medical school hospital. After holding a post as house surgeon he becomes surgical registrar or its equivalent; he has access in this position to all the

records in the hospital, and assists in many of the operations, himself undertaking emergency cases. During this time he is probably fortunate enough to secure a post on the staff of a smaller hospital, where he has the opportunity of improving his surgical work. At the same time, he usually holds an appointment as a demonstrator of anatomy, and the teaching of this subject helps him very much with his other work. After some years of this experience—and usually by this time he is over 30 years of age—he becomes an assistant surgeon to his hospital, a post in which he may have to continue for 10 to 20 years. During this time not nearly enough opportunity is given to such a man to benefit the public by the excellent training which he has had. In some cases he is entirely dependent on his senior for beds, and if he is allotted a few he must consider himself very fortunate indeed. During all these years, before he comes a full surgeon of a hospital, his income is small and his professional expenses, including the heavy rent of consulting-rooms, are very considerable. This system tends to prevent brilliant men without any unearned income from undertaking such work, constituting a very serious loss to the State.

In any reform that takes place in the hospital service, it is absolutely necessary to see that the services of such men are utilised to a much fuller extent than they are now. When a man obtains the post of a full surgeon he is usually well advanced towards middle age, when he hopes to reap the financial reward of his success. And when this comes it limits the amount of time he is able to devote to the hospital, and results in irregular attendance, fixing operations at very inconvenient hours, visits paid late in the day or during meal-times. The other claims on a busy visiting doctor's time interfere with the comfort of patients and other residents in the hospital, and the irregularity is not conducive to first-class work. These disadvantages have been found to be so great that in the London Hospital an experiment is being made by which some of the major surgery is left in the hands of resident officers, who are paid a substantial salary for their work, and I am informed that similar conditions prevail in the hospitals in Paris. In county hospitals and in large towns there may be some attempt at specialisation, but it varies considerably; owing to the limited population and the almost exclusively industrial character of the area covered by these institutions it is often impossible for a man to make a livelihood by working in the neighbourhood as a pure specialist. The staff are thus nearly all more or less, and some entirely, engaged as general practitioners. As most of those engaged in general practice are chosen by seniority their practices are as a rule very large, and as they are accustomed in their ordinary work to see patients hurriedly, this overpressure, added to their want of leisure, prevents them from reading modern literature, or attending other institutions or meetings of learned societies where they may compare their work with that of others. A mental attitude is thus developed which is not conducive to the critical atmosphere necessary for careful diagnosis or the application of skilled technique, so that their work might with advantage be supplemented by help from the staff of a teaching hospital.

Major Surgery in the Cottage Hospital.

At the present moment a hospital is usually a watertight compartment. As a rule, it must either take a case or leave it absolutely unprovided for; so that a surgeon with very limited experience in dealing with difficult cases may feel that it is his duty to perform some important major operation, or, on the other hand, to refrain from doing something which might be a material help to the patient, because he is unable to command better services. It has been suggested that each smaller hospital shall be related to a larger institution, to which it would be possible, automatically, to transfer cases requiring special skill, and the sooner this scheme is developed the better.

I recently had the opportunity of seeing a small cottage hospital in a small town, 10 miles from a large centre with a well-equipped hospital; it had four beds and faced a very narrow street, along which ran an open channel, into which, I am informed, household slops are sometimes emptied. The operating theatre consisted of a covered-in yard, and the house was supplied with a cesspool drainage. A local practitioner, who showed me round, informed me that such operations as prostatectomy were intended to be done there. At the present moment the only type of work done by medical men which is inspected is vaccination; and from the statements made by many public vaccinators it would appear that dissatisfaction is not infrequently expressed by the central authority at the way in which this simple operation is performed. It sometimes happens that in one of these cottage hospitals a practitioner with limited experience may perform a very serious operation which at present it is no one's duty to criticise.

I had the opportunity of seeing an elbow-joint which had been excised by a practitioner recently qualified, and which he had sent to an old teacher as a proof of his skill. This joint was apparently healthy, and ought not to have been removed. The patient probably had from 30 to 40 years' prospect of life, and to be compelled to spend this time with one arm like a flail must have interfered considerably with his working capacity. The only qualification this surgeon had for holding this hospital appointment was that he had recently purchased a practice or partnership in the neighbourhood. It seems reasonable that serious major operations, except in cases of extreme emergency, should not be done in a cottage hospital, and if it is considered desirable for major operations to be done there at all, the skilled and well-trained surgeons of this country should ask for, and cheerfully submit to a system of inspection which might do something to prevent operations under such conditions as those described above. As all our principal surgeons do most of their operations in public they are already exposed to a very thorough system of inspection, so that they need hardly be conscious that it was taking place.

There is increased and growing discontent on the part of the general practitioner, because he is unable to refer his cases to some practitioner engaged exclusively in consulting practice, as the only sources of consultation available to many of them are the services provided by local hospitals. Some time ago a practitioner complained that he had sent a patient with what he considered to be a cancer of the cervix to a local hospital for operation. The patient who was sent was discharged very soon, and was indignant with him for sending her there, because the hospital doctor had told her there was nothing the matter with her. Some months later she consulted her doctor again with an inoperable growth. He felt that both he and his patient were entitled to have had an opportunity of consulting a specialist, who should have decided the necessity for any operation that might have been necessary in such a case.

We may compare such procedure with that which takes place in enforcing the law, where a prisoner is only condemned to death after being dealt with by a judge who receives a salary of £5000 a year, is chosen as a master of his craft, and is provided with a considerable amount of assistance before arriving at his decision. And it has been suggested that if judges go on circuit to deal with such cases doctors should do the same.

An Interesting Experiment.

A very interesting experiment has recently been made in West Suffolk, due largely to the public spirit of the county director of the Red Cross. A distinguished consulting surgeon comes into the district at frequent intervals to operate on discharged and injured soldiers in the local hospital. This experiment appears to have been an unqualified success, and the medical officer of health suggested that a similar scheme might with advantage be adopted for other cases. During the war, when working on medical boards, I saw a number of disabled men who were brought in from the country for medical examination labelled as cripples, who, in some instances, possessed no working capacity whatever. A great deal might have been done for some of them by proper treatment, so I recently caused a census to be made with a view to ascertaining the

number of cripples in the county (population about 116,000), and these are some of the results. Of 127 cases reported on, 35 were said to have had some treatment at local hospitals, 22 at special hospitals in London. Many of them (70) had had no special treatment at all. Some cases unable to travel to London as often as necessary had to discontinue treatment so that any benefit received was entirely lost. In one case this happened after a mangle and wardrobe had been sold to defray the expenses.

This scheme was brought to the notice of the local branch of the British Medical Association, who expressed themselves enthusiastically in favour of it. At present some discussion arises as to what type of consultant shall be employed in working such a scheme. Members of the hospital staff suggest that he should be a senior consultant attached to a large London hospital. The situation would be met by employing an experienced member of the junior staff from a teaching school hospital, but in any case the principle is admitted that the services of the present staff do not entirely meet the needs of the district, and there is no provision for anything else. It is instructive to note that in one district in England where there is a fairly large local hospital three of the wives of members of the staff within recent years have required major operations, and although their husband's colleagues are expected to do such work in the local hospital, they were all operated upon by London surgeons. Without desiring to restrict the freedom of any patient to be operated upon by whosoever he wishes, provided the surgeon is a qualified practitioner, it cannot be too strongly urged that patients needing skilled examination or operation residing in any part of the country whatever should be given the opportunity of being examined and operated upon by a master of his craft. This can only be done by mobilising to the uttermost the services of the junior consultants, who would be able to render excellent services if they were only given the opportunity. We may again emphasise the point that such men are appointed by responsible hospital committees to give their services during the absence of their chiefs, and that any moment they may be called upon by death or accident to succeed the surgeon whom they are called upon to represent. A junior consultant to-day may literally become a senior to-morrow.

One of the causes of overcrowding in the large medical school hospitals is that many practitioners are recognising the disadvantages of local consultations, and are sending their patients to larger institutions rather than to the local hospital, causing a considerable amount of overcrowding. This could to some extent be avoided by sending well-trained consulting surgeons to consult and operate in the country.

A Survey of All the Hospitals.

It is therefore suggested that there should be a survey of all the hospitals in the country, that the smaller ones should become casualty stations, that some of those of a large size should have their staffs strengthened by a periodical visit from the consulting staff from a teaching school hospital, and that no attempt should be made for any supposed vested interests to exclude this valuable help. There are, especially in the North of England and in the other manufacturing centres, populous districts in which the inhabitants are chiefly working-class people, with a few well-to-do residents. The latter would probably avail themselves of the services of a consultant from London, or a neighbouring teaching school; most of the work-people receive specialised treatment at the hospital. Such a district is incapable of providing an income for a local specialist. Many of the hospitals in such areas are of appreciable size, and they ought without delay to reinforce their staffs from the nearest teaching school hospital, as specialist treatment is absolutely necessary to keep such an amount of working capacity at its maximum of efficiency. General practitioners are more and more anxious to avail themselves of really skilled help and are objecting to being provided with anything else, as they realise that the exacting life they lead and the hurried manner in which they have to deal with their patients does not afford them proper opportunities of doing this work themselves. It is specially desirable at this moment to emphasise this point, as the Ministry of Health are appointing a number of consultants to work the Insurance Act. These men, to be trusted as they should be, must be engaged in consulting practice, must be associated with the work of teaching school hospitals, and must be able to prove to those who employ them that they are keeping themselves up to date.

A Local Authority Hospital Service.

The outlook of medical service has been altered entirely by improving facilities for transport, and it is quite possible now to remove a patient 20 or 30 miles in a well-constructed ambulance without any inconvenience. In the same way, specialists are able to travel a very considerable distance to visit centres for the purpose of seeing patients, or performing operations in a way which was impossible when most of the hospitals were built. In addition to general hospital services, as supplied by local committees, there are Poor-law infirmaries, where the expert work is usually left to a medical superintendent, who has to administer a large institution and devote his energies to all types of cases. Although there are in this service a few men who do wonders in spite of these difficulties, this method of organisation is not capable of providing what is required. As some of the infirmaries in London south of the Thames have to serve the area largely as general hospitals, the question of re-staffing those institutions is a somewhat urgent one. They would form an excellent nucleus for a local authority hospital service. Local authorities have provided hospitals for infectious diseases. In the larger centres these are, as a rule, well administered, enjoy the confidence of the public, and afford an excellent reason for the hospital services of the State being undertaken by large local authorities; on the other hand, the administration in some of the smaller institutions leaves much to be desired. For instance, a county medical officer some time ago visited a small fever hospital where the nursing of the patients was left to the wife of an employee of the district council, who had to do such work as emptying the earth-closets. Although this woman had had some nursing experience, such a combination of persons and functions was not likely to attract the best type of officer. Some of the patients slept together in double beds, no easy chairs were provided, and patients convalescing from diphtheria were compelled to sit on benches without any backs. The food was stored in the bathroom and in the bath; the same tongue-depressor was used for examining a series of throats; no overalls were provided for the doctor or nurse; and there was no means of washing the visiting doctor's hands. This carries us back to the day when such institutions were regarded as a means of protecting the public, and the patient's recovery was quite a secondary matter. The remedy for such conditions would be a system of proper inspection of these institutions and the closing of many of them. This would be only fair, as it is not infrequent for patients to enter isolation hospitals under pressure, contrary to the wishes of their friends, and they ought to be provided with a proper service. This work could be carried on in central hospitals, the patients being moved there by motor ambulances. A larger institution is desirable for efficient and economical working, and provision should at the same time be made, where necessary, for the conveyance of the friends of those on the danger list, and sometimes for their accommodation in the institution.

In addition, health authorities to some extent fill in the wide gaps left in our hospital system by providing clinics and special treatment for diseases such as tuberculosis, venereal diseases, maternal and infantile disorders, diseased tonsils and adenoids, refraction work, and so forth. In many instances this help is provided through whole-time officers; it is, as a rule, very good, one advantage being that the medical officer of health is able to secure that the services provided are up to date. This limited ad hoc method of meeting the

situation is unsatisfactory. It would be much better to deal with the whole community through one large series of specialised institutions, the voluntary hospital maintaining its place in the system. It is absolutely unjustifiable, except on the grounds of pseudo economy, that women and children who constitute the largest number of patients of the ordinary doctor should be excluded from the benefits of the Insurance Acts. This, and the gross overcrowding and long waiting lists of the gynæcological departments, the absence of skilled treatment for abortions and other female ailments, and the great lack of maternity beds in general hospitals, accentuate the difficulties of local authorities in dealing with the situation. More help is needed for hospital committees, especially in such matters as the provision of new buildings, reconstruction, and developments. These details are sometimes dealt with by a committee without any expert assistance; this may prevent the subscribers' money being spent to the best advantage, and it would be to the benefit of the public if the situation were more widely recognised. It would be of great assistance to all those who have to administer such institutions if the Ministry of Health would provide a record office where a full description of all up-to-date institutions can be found, placed in the charge of some intelligent person who would be able, at short notice, to produce photographs, plans, and specifications of any new institutions that may be erected in any part of the world.

I had the opportunity of visiting a new hospital at Toronto six years ago, where it was the boast of the management that they had put into it everything that was good in any other institution in America or Europe, and they assured me it was exceedingly difficult for them to obtain the necessary information. One innovation appeared to be of great value. Instead of admitting accidents and emergencies at all hours of the day or night into the general ward and disturbing the rest of the hospital in consequence, they had a unit of about 30 beds with a separate theatre provided to deal with such cases, and this was found to be extremely valuable.

The Ancillary Services.

The provision of expert services would be incomplete without noticing the valuable help rendered by nurses and the women workers in nursing, massage, electrical and other departments, services which have made enormous strides during the war. Such services should be at the disposal of any general practitioner and patient that may need them. The utilisation of the service of the general practitioner in general hospitals needs careful consideration. It should be done as much as possible, though there are great practical difficulties. The general practitioner in the interests of the public ought not to undertake major surgical operations without expert medical assistance, but he ought to take part in this and other hospital work. The best solution of this problem would be the establishment of a number of out-patient clinics where this closer coöperation could be commenced. In small towns every medical practitioner ought to be admitted to the hospital staff as a means of preventing the curious anomalies that sometimes exist now. There should be beds where the general practitioner can deal with his patients in institutions, although we must not forget that if this work were provided for on a large scale some uniform and agreed system of dieting would have to be arranged. It may be said that all sections of the public seem to have a weakness for the irregular practitioner. One of the best methods of dealing with this matter is to make the public realise the very unsatisfactory nature of the services they render. Unfortunately, orthodox practitioners either from lack of opportunity or want of appreciation have not explored sufficiently such subjects as remedial exercises, massage, and manipulation, which are capable of rendering patients great assistance in keeping well and in curing their disease. In consequence, this sort of treatment has got chiefly into the hands of quacks who, with the imposing consulting-rooms and much ritual have undoubtedly gained the confidence of some of their patients by treatment which could have been provided to much better advantage by orthodox practitioners. Although in many instances the quack is a serious menace to public health, he is more difficult to deal with because he has been allowed in this way to stray into legitimate fields of treatment.

I have especially avoided going into too much detail, and have left the financial side of these questions severely alone, but wish to emphasise the necessity of providing a system to supply expert medical service of the best type to everyone needing it, as something that is absolutely necessary to maintain that working capacity, rather than as an act of charity. Although not recorded in any book, or capable of support by an array of figures available at this moment, we may be sure that there is a considerable amount of preventable and unnecessary suffering, premature death, and loss of working capacity and money, due to the want of organisation of our hospital system. We have learnt a great deal in the war which may be applied to these present problems. Such members of the public and the medical profession who study these questions (and they are rapidly increasing in number) are profoundly dissatisfied with the present state of things. The time is therefore ripe for reform, and it is for the medical expert to indicate clearly on what lines it may be most effectively carried out.

MEDICINE AND THE LAW.

The Proprietary Medicines Bill.

THE general policy of this Bill was explained and commented on in a leading article in THE LANCET last week, and it will have been gathered by readers that, except in the case of certain diseases, alleged remedies for which are not to be sold at all, it orders the registration of proprietary medicines and appliances, with full particulars of the articles in question. It does not appear to intend that the registration should in any case be refused for such a reason as that a medicine is not likely to produce the therapeutic effects claimed for it, but seems to contemplate the registration taking place if the prescribed regulations as to application for registration are complied with. The Minister of Health may, however, make regulations under Section 5 (*c*) "For prescribing the causes for which and the manner in which a registered owner may be removed from the register." In this and other respects the effect of the Bill cannot be properly estimated until it is passed, and then not until the regulations to be made under it have been acquiesced in by Parliament. Attention is here called to some of the principal provisions of the Bill as introduced and printed.

Sections 1, 4, 6, and 7 order the registration of proprietary medicines and appliances, and Section 5 defines in detail the formation and maintenance of the register, which is to be the subject of regulations. Two important sections of the Bill are, however, independent of regulations. The first of these which, it is proposed, should come into force six months after the commencement of the Act, declares that it shall not be lawful "for any person to sell or to offer or advertise for sale any medicine or surgical appliance of any kind whatsoever purporting or stated directly or by implication to be effective for the prevention, cure, or relief of any of the diseases or infirmities mentioned in the schedule to this Act." The schedule, which can be enlarged by regulation of the Minister, at present contains cancer, consumption, lupus, deafness, fits, epilepsy, amenorrhœa and other diseases peculiar to women, diabetes, paralysis, locomotor ataxy, Bright's disease, and rupture. It is to be noted that the proprietary medicines and appliances here forbidden to be sold include not only those where the owners propose to "cure" a scheduled disease, but also those which are put forward as effective to "prevent" or to "relieve" it. This makes the section extremely comprehensive, and it is one which will, no doubt, be criticised as such. The occasion, however, is not one for half measures, and an easy means for continuing the trade in various ineffective or dangerous compounds or articles would be provided if their owners

were merely prohibited from pretending to "cure" such diseases as those in the schedule.

The limiting words quoted above may be noted in connexion with the question of what medicines and appliances, if "proprietary," must be registered. Section 10, which contains the interpretation of expressions used in the Bill, defines "medicine" as including any drug, preparation, or compound to be used externally or internally for "the prevention, cure, or relief of any malady, ailment, infirmity, or disorder affecting human beings." It defines, on the other hand, a proprietary surgical appliance as "any instrument or contrivance of a medical or surgical nature which is recommended to the public by advertisement, label or otherwise in writing, as of use for curative purposes, and which is sold under a trade-name or a trade-mark to the use of which any person has or claims or purports to have an exclusive right, or for the making or selling of which any person has or claims or purports to have an exclusive right." It will be seen that unless a surgical appliance comes within Section 2, when its sale is forbidden, or is advertised as curing or tending to cure (which is presumably the meaning of "for curative purposes"), when it must be registered, it is not a "proprietary surgical appliance" within the meaning of the Bill. It seems clear that this will leave untrammelled the trade in many useful appliances, the manufacturers of which make no promises incapable of fulfilment, and have built up businesses to which none can reasonably object. The definition or interpretation, however, of the word medicine, quoted above, appears to introduce some possibility of doubt and difficulty, in that it may not always be plain whether that for which cure or relief is advertised is to be classified as a "malady, ailment, infirmity, or disorder." Drugs, for example, advertised as having the effect of making their consumers fatter or thinner can hardly be said to promise the relief of a malady in so far as they are offered to men or women dissatisfied with their physical attractions. Presumably, however, they may bring themselves within the contemplated law if they refer specifically to obesity or emaciation arising from disease, and hold out in their advertisements hopes for its cure or relief.

The other section referred to as not to be affected by regulations forbids absolutely the advertising of proprietary medicines or surgical appliances by the use of those devices which have become familiar in the past, and which, no doubt, have been found profitable by the vendors of useless or pernicious nostrums. The statement that the article advertised is recommended by a medical practitioner without full particulars of his identity is forbidden, inter alia, as is a false statement or suggestion that a medical practitioner first discovered, invented, or compounded the article advertised. It may be noted that the protection of the legitimate sale of medicines is provided for by Section 9 in the following terms: "Nothing in this Act shall operate to render unlawful the sale of any medicine or appliance to or for the use of any person in accordance with a prescription given in the case of that person by a duly qualified medical or dental practitioner." This seems to suggest that the sale of a medicine, not given under a prescription in the case of the person who will use it, will in future be unlawful. The practice of using prescriptions given to other persons exists, and is objectionable no doubt, and it is right that it should not be specifically protected. It must not, however, be taken as forbidden by the words quoted. The compound ordered in a prescription may be a medicine as defined in the Bill, but it can hardly become a "proprietary medicine" either according to the definition of "proprietary" or in the ordinary meaning of the word, merely because it is sold to a person for whom the prescription was not intended.

It will be interesting to watch the fate of some of the sections of the Bill when it comes to be discussed in detail in the House of Commons, but the Ministry of Health and the public will alike deserve congratulation if the measure passes without mutilation or destructive amendment.

An Ignorant Maternity Nurse.

At a recent inquest at Hackney on the body of the wife of a shipping clerk it was proved that the cause of death was blood poisoning following upon the confinement of the deceased. The medical man who had attended the deceased stated that he had found that the monthly nurse who had been engaged to attend the case had a finger in a septic condition, and he had accordingly dismissed her. He added that the woman in question had admitted to him that she had never passed any examination, and that she did not even know the meaning of the word "antiseptic." The coroner expressed surprise at such a person being employed and warned her upon her conduct, which, if she continued to attend such cases, might place her in a very serious position. He recorded a verdict of "Accidental death." If, as is to be gathered from the report of the case, the coroner was sitting alone, it would appear to have been one in which a jury might well have been summoned, and that the "nurse" was lucky in not having to face trial for manslaughter. The Nurses Registration Act, 1919, should, at any rate in future, operate to prevent such a person from securing registration under its provisions for an "existing nurse's" registration; to enable such a person to be removed from the register if upon it; or to prevent such a person, not being on the register, from calling herself or pretending to be a registered nurse. It will not prevent anyone from employing as a nurse in childbirth an ignorant, dirty, and unqualified person. It is gathered from the reports of the inquest above referred to that the "nurse" was engaged to act under a medical man and not as a midwife.

Prohibited Milk.

At Taunton County-Court a local dairyman recently brought an action against the town council for £100 damages for loss caused by the order which was enforced from Jan. 6th to Jan. 31st, prohibiting the admission of his milk into Taunton. Last November and December enteric fever broke out in the town, and it was discovered that out of 11 cases of the disease four had obtained their milk from the same retailer. This tradesman had his milk from three different sources, the plaintiff's dairy being one of them. Analysis of the milk showed that although there was no direct proof that the milk was a source of the disease, there was "gross contamination" from a dirt point of view, and consequently there was reasonable ground for enforcing the order. His honour (Judge the Honourable W. B. Lindley) dismissed the plaintiff's claim with costs, stating, in delivering judgment, that the order was made for the protection of the public, and prompt action was necessary by the council. This body acted upon the advice of the medical officer of health, who had formed his opinion with reasonable and sufficient care and evidence.

HOUSING NOTES.

The Conservation of Hygiene.

THE Ministry of Health is already laying plans against the obvious danger of degradation which the new hygienically-constructed houses will have to face. The cynic might be tempted to sneer, "First build your house. ....." He would be wrong in doing so, for, as has been shown in a recent number of *Housing*,[1] there is already much slum property which might be redeemed to afford decent living conditions by proper management. At Fulham, for example, there has been no rebuilding at all. Some women, trained on the lines laid down by Miss Octavia Hill, began to manage a few houses purchased by a private owner in this area about eight years ago, and the number has gradually increased to 60 or 70. The houses were shockingly overcrowded when first purchased by the present owner, with the sanitary fittings destroyed, the walls, ceilings, and floors badly damaged, windows broken and woodwork gone. There is a marked difference between the

[1] Housing, July 19th, 1920.

condition of recently acquired houses and that of others in the same neighbourhood which have been carefully supervised for six to eight years. From all this it emerges that the manager of property should be the person who receives the rent, and that he or she—preferably, it seems, she—should be a trained social worker, able to appreciate the needs and difficulties of the tenant without forgetting that the landlord must receive his interest. If the work is well done the manager will be popular, the tenants will become more self-respecting and therefore better tenants, while a good environment will be created for the social education of young householders, whose living habits are unformed. It is clear that a manager of property has a very responsible post. In order that suitable officers may be found a reasonable salary must be offered. The city of Amsterdam has been paying its chief woman manager a salary rising from £350 to £550. Her assistants, when fully trained, receive up to £291. These do not seem tempting salaries in our days, but the scheme is expensive. The municipality of Amsterdam, however, believes that the money so spent brings in a good return. Will English authorities be equally far-seeing?

The Myth of Loftiness.

The substitution of the kata-thermometer for the carbonic-acid index of ventilation has made necessary a complete revision of standards for the architecture of living rooms. This is brought out in an interesting manner in a short article by S. W. W.,[2] who effectually destroys our faith in the lofty ceiling. It is less important in view of modern knowledge to have high walls than to have high windows, and cubic space is best obtained by having a large floor area, so that the infections resident in the respiratory tract are less liable to pass from host to host.

The Output of Houses.

Progress in new construction is not rapid. It may be doubted whether we have yet reached a rate of output commensurate with the normal growth of population. Members of the Government have been in conference with representatives of the building trade, though no agreement appears to have been reached as yet. We believe that both sides are sincerely concerned for the public welfare and that such conferences must eventually bear fruit. The Government must realise, however, that with raw materials at their present price building will not progress rapidly, however many recruits are drafted into the industry. Increasing subsidies will some day become a serious drain upon the public purse. Dr. Addison stated in the House of Commons on July 15th that the high prices would be met by using alternative methods of construction. This is no real remedy. Many items such as lead piping will be common to all kinds of construction, and if a new wall material becomes popular experience shows that it will soon become expensive in proportion to its utility. The time will come when the price of building materials must be controlled as food prices were controlled during the war, and for the same reasons.

[2] Ibid., June 21st, 1920.

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION.

METEOROLOGICAL OFFICE: ADVISORY COMMITTEE ON ATMOSPHERIC POLLUTION: SUMMARY OF REPORTS FOR THE MONTHS ENDING

Feb. 29th, 1920.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre. Insoluble matter. Tar.	Insoluble matter. Carbonaceous other than tar.	Insoluble matter. Ash.	Soluble matter. Loss on ignition.	Soluble matter. Ash.	Total solids.	Included in soluble matter. Sulphate as (SO_3).	Included in soluble matter. Chlorine (Cl).	Included in soluble matter. Ammonia (NH_3).
ENGLAND.										
London—										
Meteorological Office	13	0·25	2·61	4·90	0·83	1·77	10·36	0·65	0·57	0·02
Archbishop's Park	16	0·09	0·98	1·29	4·10	1·93	8·39	0·99	0·29	0·05
Finsbury Park ...	14	0·09	0·81	2·14	0·73	1·72	5·48	0·83	0·27	0·04
Ravenscourt Pk.	10	0·04	0·80	2·33	0·93	1·90	6·00	0·97	0·20	0·09
Southwark Park	16	0·10	1·61	3·33	0·93	2·03	8·00	1·00	0·30	0·05
Victoria Park ...	16	0·04	1·30	2·72	0·75	1·60	6·42	0·67	0·37	0·03
Wandsworth Com.	11	0·03	0·35	0·97	0·65	1·45	3·44	0·69	0·27	0·03
Golden Lane*										
Birmingham—										
Central	26	0·09	2·52	7·22	1·55	2·69	14·07	1·55	0·22	0·04
Aston	30	0·08	1·86	5·35	0·68	2·65	10·62	1·23	0·22	0·03
South-Western ...	26	—	—	—	0·42	1·82	—	0·87	0·13	0·02
Kingston-upon-Hull	41	0·13	2·66	4·72	1·43	4·85	13·79	2·27	0·73	0·15
Malvern	18	—	0·07	0·20	0·26	0·77	1·32	0·36	0·06	Tr.
Newcastle-on-Tyne..	23	0·51	3·19	6·98	1·31	2·38	14·37	1·31	0·33	0·07
Rochdale	118	—	—	—	—	—	26·34	—	—	—
Rothamsted	11	—	0·44	0·39	0·92	1·52	3·27	—	—	—
St. Helens	72	0·08	0·86	1·11	1·02	4·16	7·23	1·42	1·31	0·05
Southport—										
Hesketh Park ...	57	0·02	0·48	0·56	1·16	1·97	4·19	0·51	0·79	0·08
Woodvale Moss ...	58	—	—	—	—	—	3·85	—	—	—
SCOTLAND.										
Glasgow—										
Alexandra Park ...	88	0·03	1·04	1·63	2·54	4·12	9·36	1·93	0·98	0·16
Bellahouston Pk ...	97	0·04	0·51	1·11	3·81	4·24	9·71	1·68	1·43	0·05
Blythswood Sq. ...	126	0·09	1·09	1·74	4·83	5·51	13·26	2·38	1·52	0·15
Botanic Gdns. ...	121	0·06	0·68	1·15	2·83	4·83	9·55	2·53	1·14	0·11
Queen's Park ...	120	0·03	0·44	0·86	2·14	3·78	7·25	1·24	1·09	0·07
Richmond Park...	112	0·04	0·89	1·59	3·01	3·37	8·90	1·74	1·19	0·14
Ruchill Park ...	120	0·07	0·72	1·14	3·42	4·58	9·93	1·77	1·18	0·12
Tollcross Park ...	104	0·10	1·24	2·24	2·99	4·69	11·26	2·05	1·21	0·09
Victoria Park ...	119	0·03	0·77	1·28	3·33	4·91	10·32	1·39	1·31	0·11

March 31st, 1920.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre. Insoluble matter. Tar.	Insoluble matter. Carbonaceous other than tar.	Insoluble matter. Ash.	Soluble matter. Loss on ignition.	Soluble matter. Ash.	Total solids.	Included in soluble matter. Sulphate as (SO_3).	Included in soluble matter. Chlorine (Cl).	Included in soluble matter. Ammonia (NH_3).
ENGLAND.										
London—										
Meteorological Office	28	0·26	2·53	6·95	1·34	2·13	13·21	0·67	0·73	0·03
Archbishop's Park	31	0·12	3·36	4·82	1·56	3·50	13·35	1·66	0·42	0·10
Finsbury Park ...	33	0·10	1·36	4·84	0·93	2·39	9·63	0·98	0·41	0·03
Ravenscourt Park	25	0·09	0·44	1·47	1·08	2·51	5·60	1·32	0·26	0·11
Southwark Park	36	0·08	1·56	3·74	1·16	2·55	9·09	1·25	0·43	0·07
Victoria Park ...	36	0·10	1·46	3·54	0·65	1·90	7·64	0·62	0·50	0·03
Wandsworth Com.	27	0·07	1·45	4·59	0·80	2·09	8·99	0·82	0·38	0·05
Golden Lane ...	33	0·07	3·30	5·15	0·79	2·75	12·05	1·06	0·81	0·14
Birmingham—										
Central	69	0·09	3·97	11·82	1·66	3·96	21·50	2·06	0·45	0·07
Aston	62	0·08	2·13	7·32	1·48	3·47	14·48	1·67	0·34	0·05
South-Western ...	75	0·04	0·62	1·92	0·67	2·77	6·02	1·24	0·22	0·05
Kingston-upon-Hull	54	0·12	2·11	3·81	1·82	4·04	11·90	2·06	1·07	0·05
Malvern	87	—	0·20	0·23	0·59	1·54	2·57	0·77	0·15	0·02
Newcastle-on-Tyne	70	0·47	4·18	8·22	2·80	3·68	18·74	2·25	0·40	0·11
Rochdale	—	—	—	—	—	—	35·34	—	—	—
Rothamsted	34	—	0·66	0·49	1·21	1·34	3·70	—	—	—
St. Helens...	90	0·21	1·34	2·80	0·41	26·16	30·92	2·15	1·44	0·07
Southport—										
Hesketh Park ...	97	0·06	0·58	0·70	1·70	1·94	4·98	0·89	0·87	0·09
Woodvale Moss ...	87	—	—	—	—	—	5·30	—	—	—
SCOTLAND.										
Glasgow—										
Alexandra Park...	82	0·05	1·35	2·25	3·61	3·95	11·21	1·63	0·82	0·12
Bellahouston Pk.	75	0·06	0·73	1·33	1·68	1·71	5·51	0·67	0·88	0·07
Blythswood Sq. ...	89	0·10	0·81	3·50	3·06	4·38	11·85	1·82	0·83	0·14
Botanic Gdns. ...	96	0·09	1·16	2·52	3·91	3·47	11·15	1·68	0·82	0·13
Queen's Park ...	97	0·07	0·52	1·42	2·06	2·66	6·72	1·30	0·85	0·09
Richmond Park...	94	0·08	1·10	3·99	3·11	1·72	10·00	1·24	0·86	0·14
Ruchill Park ...	105	0·08	1·49	2·50	1·70	2·64	8·41	2·05	0·94	0·14
Tollcross Park ...	93	0·15	1·09	2·92	2·13	1·68	7·97	1·75	0·76	0·09
Victoria Park ...	101	0·35	0·90	2·97	4·00	4·34	12·56	2·10	0·95	0·12

* There were no returns from the station at Golden Lane in London during February owing to the gauge being under repair, and there were no returns from Stirling for both February and March.

"Tar" includes all matter insoluble in water but soluble in CS_2. "Carbonaceous" includes all combustible matter insoluble in water and in CS_2. "Insoluble ash" includes all earthy matter, fuel, ash, &c. One metric ton per sq. kilometre is equivalent to: (*a*) Approx. 2lb. per acre; (*b*) 2·56 English tons per sq. mile; (*c*) 1 g. per sq. metre; (*d*) 1/1000 mm. of rainfall.

The personnel of public health authorities concerned in the supervision of these examinations and of the analytical work involved remains the same as published in previous tables. The analyses of the rain and deposit caught in the gauge at the Meteorological Office are made in THE LANCET Laboratory.

Correspondence.

"Audi alteram partem."

THE PHARMACIST AND THE PROPRIETARY MEDICINES BILL.

To the Editor of THE LANCET.

SIR,—In approaching the Proprietary Medicines Bill from the standpoint of the pharmacist, I must first of all express the regret that one of the most brilliant members of the pharmaceutical profession of our time, and the one whose patient work perhaps did more than that of any other man to enlighten the public mind on the follies of quackery, has not lived to see his efforts so near fruition. I refer to the late Lieutenant-Colonel E. F. Harrison, who before working himself to death in order to find means of protection for our troops against the German poison gases, devoted years of his life to unravelling the secrets of secret remedies and so demonstrating how the vast majority of the population of this country was being fooled by a handful of nostrum mongers. *Omne ignotum pro magnifico.* After Harrison had finished his labours there was little left to be known about the secrets of the quacks.

It will be understood that these references to quackery do not embrace every maker and vendor of proprietary medicines; probably scores of proprietary articles could be enumerated which not only do not merit condemnation, but are almost as good as they are claimed to be. The class of compound I have especially in mind in making this reservation is that which depends for its vogue on some special manipulative method which makes the medicine superior in one way or another to others of its kind, and is as different from the offensively advertised "cure-all" as chalk is from cheese.

If proprietary medicines had been confined to the better type, or even to such as are made in almost every pharmacy in the country, it is possible that restrictive legislation would not have been needed. What made the business an offence to public decency was the long and rapidly lengthening list of worthless mixtures, pills, and salves, foisted on a credulous people by men of the get-rich-quick type, who knew nothing and cared nothing about the properties of drugs so long as they brought grist to the mill. As I read the provisions of the Bill, there is nothing in it to prevent any man from turning an honest penny, but if it does not prevent the public from being fooled it will fail in its purpose.

Coming to the details of the measure as they affect the conduct of the maker or vendor of proprietary medicines, the most noteworthy provision is that which prohibits the sale of alleged cures for cancer, consumption, deafness, fits, epilepsy, amenorrhœa and other diseases peculiar to women, diabetes, paralysis, locomotor ataxy, and rupture. I have yet to meet the pharmacist who would deny that it is wrong to sell "cures" for incurable diseases, and if that description of the object of the provision is hardly complete, I hasten to add that I have met no pharmacists who would not admit the justice of putting a stop to the exploitation of persons suffering from any one of these diseases. Next in importance comes the provision that the composition of proprietary medicines must be disclosed in confidence to the Registrar in a Government department. That the notorious quack will find many specious reasons why he should not do this there is not the least doubt, but with him we are not concerned. Will the pharmacist object? I do not think so. Some years ago, following a new interpretation of one of the sections of the Medicine Stamp Act, practically all the pharmacists in practice in Great Britain disclosed some of their most prized formulæ, and had them printed in a book that ran into thousands of copies. Is it likely that a pharmacist who will publish the names of the ingredients of his compounds for all the world to see will object to have them placed in the hidden archives of the Ministry of Health?

There is, however, one provision to which pharmacists may possibly take exception—namely, that which makes it an offence for anyone selling a proprietary medicine to enclose within the wrapper an advertisement of another proprietary medicine. In whose interest this is made an offence I do not know, but it is certainly not in the interests of the public, since we find nothing in the Bill to prohibit the advertising of proprietary medicines in the public press, with the exception of medicines for the diseases specifically named. As a matter of fact, this clause has already been withdrawn. Another objection which pharmacists may raise is that the Minister should not have the power to add to the schedule of diseases remedies for which may not be sold.

Finally, it should be remembered that proprietary medicines are almost as old as the hills, and that reasons against the interference with the immemorial way of life must be heard with patience. A lesson may be learned from the Australian Royal Commission, on the results of whose inquiry into secret medicines the law affecting their sale in Australia was based. This Commission made a strong point of the fact that while in England makers of feeding-stuffs for animals and manures for the ground must disclose the composition of these articles, the English law allowed human beings, whether babies or adults, to be dosed with secret compounds. Unless it is proved that cattle and turnips are more precious than human lives, an answer will have to be found to the remonstrance.

I am, Sir, yours faithfully,

August 10th, 1920. PHARMACEUTICUS.

THE TREATMENT OF ACUTE INFECTION OF THE KNEE-JOINT BY ACTIVE MOVEMENT.

To the Editor of THE LANCET.

SIR,—The allusion in your annotation of July 10th (p. 81) to this method of treatment reminds me of a series of cases which I treated when in France. Willems's method, in my hands, gave only a small measure of success, because I was unable to persuade the patients to carry out the movements unaided. I therefore designed a contrivance which, by means of a mobile splint and counter-weights, overcame the force of gravity. By this the movements were made as easy as possible, and the initial pain and weakness did little to hinder them.[1] The immediate effect was striking. After the first day or two pain was definitely eased by active movement, tracking appeared to be prevented, and the vascularity of the limb was maintained. During treatment the joint secretion tended in two or three weeks to become clear, resembling normal synovial fluid, and the wounds rapidly granulated and healed.

I ascribe the beneficial effect not only to the mechanical expression of pus by the movements, but also to the maintenance of a good blood-supply. In a part functionally at rest the blood tends to stagnate, especially in the lower extremity, where venous return is largely dependent upon muscular activity. Given a good blood-supply, a synovial secretion more potent in its bactericidal property is reasonably to be expected. This property appears to be maintained, provided that the fluid is prevented from stagnation by arthrotomy in the more severe cases, or by aspiration in the milder.

Several of my cases bore a marked resemblance to that published by Dr. F. B. Lund. Of a series of 23 septic knee-joints which I treated in this way, 11 obtained good mobile joints; 1 only was amputated, and that for other reasons. Though in civil practice we are not often confronted with the problem of the infected knee, I have had a few instances where the principles evolved, as the outcome of experience gathered during the war, have been further established. For example, a girl of 6 was admitted under my care into King's College Hospital, having run a rusty needle into her knee-joint. In three days the joint had become distended with a fluid which was found on aspiration and examination to be rich in pus cells and staphylococci. Three aspirations, combined with active move-

[1] A New Method of Treatment for Suppurative Arthritis of the Knee-joint, British Journal of Surgery, April, 1919.

ments, brought about complete resolution in three weeks, and she left hospital walking perfectly. Such a case would, I think, undoubtedly have been treated by the majority of surgeons in pre-war days by wide incisions and drainage-tubes placed in the synovial cavity. The results of such treatment are too well known to require description.

The rarer form of gonorrhœal arthritis—namely, synovitis with effusion—I have recently been treating in a similar fashion by aspiration with active movements. The result has been stimulating to further endeavours. I am, Sir, yours faithfully,

JOHN EVERIDGE.

Upper Wimpole-street, W., August 3rd, 1920.

EMBOLIC ANEURYSM OF PERIPHERAL ARTERIES.

To the Editor of THE LANCET.

SIR,—In your interesting annotation dealing with the communication by Mr. Douglas K. Adams on Embolic Aneurysm of Peripheral Arteries, which appeared in the *Glasgow Medical Journal*, you refer to the critical review on bacterial endocarditis by Irving Simons, published in the *Quarterly Journal of Medicine* for April, 1914, as giving "a list of the recorded cases of embolic aneurysms." This list is not, of course, confined to "peripheral" aneurysms; it is intended to include those found in other vessels, such as the branches of the cœliac axis and the renal and cerebral arteries. The list is prefaced by the remark: "The distribution of embolic aneurysms is of extreme importance," and in a note following his table the writer says: "These cases are all that I have been able to find in the literature."

I have always regarded the omission from Simons's review of any reference to aneurysm of the coronary arteries of the heart as a serious flaw in his admirable contribution to our knowledge of bacterial affections of the endocardium. In the *British Medical Journal* of Feb. 2nd, 1901, in putting on record two cases of embolic aneurysm of the coronary arteries of the heart, associated with infective endocarditis, I gave a list of all the cases of aneurysm of those vessels which I had been able to collect from the literature. Although it is not likely that this list was a complete one, it dealt with 24 instances, including my own two, the earliest of these being that which was put on record by Bougon in 1812. I was able to read the original account of 18 of these, and I found that in six of them infective endocarditis was seen on autopsy. This is, of course, strong presumptive evidence that the aneurysms were embolic, and in discussing the remaining 12 cases I gave what I considered good reasons for thinking that most of them also were due to this cause.

Subacute infective endocarditis is an affection which appears to be on the increase. Its frequency during the war was very striking and it may be that its continued frequency is an aftermath of war. I would urge that every opportunity be taken by those who are engaged in making autopsies in cases of infective endocarditis to include a careful examination of the coronary arteries for embolism. If the common cause of aneurysm of the coronaries in infective endocarditis is indeed embolism, the proof of this will be found not in the demonstration of an embolon in association with the aneurysm, for an embolon may well have disappeared after the infection of the arterial wall has led to softening and dilatation, but in the frequency of coronary embolism being shown to be greater than is usually supposed. It is a remarkable coincidence that the two cases of coronary aneurysm I put on record were seen in autopsies done by me on the same day, and that the next autopsy I performed was also on a case of infective endocarditis in which the patient had died suddenly, and in which I found both coronary arteries plugged by detached vegetations.

One of the points I desired to emphasise in my paper of 1901 was the probability of aneurysms of the coronary arteries "sharing the peculiarity of aneurysms on small vessels elsewhere in being embolic in origin."

I am, Sir, yours faithfully,

Leeds, August 9th, 1920. T. WARDROP GRIFFITH.

STANDARD ARTIFICIAL LIMBS.

To the Editor of THE LANCET.

SIR,—I notice in your issue of July 31st that you have published an article on Standard Artificial Limbs, and I am surprised that the information you have received has not any reference to the services rendered to the Ministry of Pensions by the British Artificial Limb Makers' Association.

Throughout the whole of the work of devising standard artificial limbs a large proportion of the research and experience necessary to arrive at satisfactory solutions of difficult problems devolved upon the British Artificial Limb Makers' Association, and Sir Charles Kenderdine has acknowledged at more than one meeting of the Advisory Council to the Ministry to what a large extent the work has been indebted to the Association for assistance and suggestions. The Limb Makers have combined to place their experience at the disposal of the Ministry to arrive at the most satisfactory forms of limb for standardisation, and I shall feel greatly obliged if you will accord the same publicity to this letter as to the article referred to.

I am, Sir, yours faithfully,

W. R. GROSSMITH,
Honorary Secretary, British Artificial Limb Makers' Association.

12, Burleigh-street, London, W.C. 2, August 6th, 1920.

URBAN VITAL STATISTICS.

(Week ended August 7th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had been 9·9, 9·8, and 9·9 in the three preceding weeks, fell last week to 9·6 per 1000. In London, with a population of nearly 4½ million persons, the annual death-rate was 9·1, or 0·4 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 2·7 in Enfield, 4·3 in Ealing, and 4·9 in Walthamstow, to 15·4 in Bury, 16·3 in Stockton-on-Tees, and 17·2 in Hastings. The principal epidemic diseases caused 168 deaths, which corresponded to an annual rate of 0·5 per 1000, and comprised 87 from infantile diarrhœa, 28 from diphtheria, 22 from measles, 17 from whooping-cough, 9 from scarlet fever, and 5 from enteric fever. Measles caused a death-rate of 2·0 in Aberdare, but the mortality from the remaining diseases showed no marked excess in any of the towns. There were 2022 cases of scarlet fever and 1469 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1956 and 1481 respectively at the end of the previous week. The causes of 34 of the deaths in the 96 towns were uncertified, of which 8 were registered in Birmingham and 4 in Hull.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had been 11·1, 11·6, and 11·2 in the three preceding weeks, fell to 11·1 per 1000. The 256 deaths in Glasgow corresponded to an annual rate of 11·1 per 1000, and included 8 from infantile diarrhœa, and 2 each from small-pox, measles, diphtheria, and whooping-cough. The 56 deaths in Edinburgh were equal to a rate of 8·6 per 1000, and included 1 from infantile diarrhœa.

Irish Towns.—The 107 deaths in Dublin corresponded to an annual rate of 13·4 per 1000, or the same as that recorded in the previous week, and included 4 from whooping-cough, 3 from infantile diarrhœa, and 1 each from enteric fever and diphtheria. The 95 deaths in Belfast were equal to a rate of 12·4 per 1000, and included 10 from infantile diarrhœa, 2 from scarlet fever, and 1 each from enteric fever, measles, and whooping-cough.

ROYAL COLLEGE OF PHYSICIANS, EDINBURGH: DR. JESSIE MACGREGOR PRIZE.—The trustees of the Dr. Jessie Macgregor Prize announce the award, for the present triennial period, to Miss Lucy Davis Cripps, M.B.E., M.B., Ch.B. Edin., for her work on tetryl. The prize, which is open to medical women graduates of Edinburgh University or to women who have taken the triple qualification, is given to the applicant who presents the best record of original work in the science of Medicine, done not earlier than three years prior to the date of the award.

The Services.

ROYAL ARMY MEDICAL CORPS APPOINTMENTS.

A RECENT Army Order provides that medical practitioners who are required for service in an emergency shall be commissioned into the Special Reserve or Territorial Force, under the same conditions of service and the same rates of emoluments as apply to officers of those forces; and that, in the event of it being found necessary to grant temporary commissions, officers to whom such commissions are granted shall not receive more advantageous emoluments than those applicable to officers of the Special Reserve and Territorial Force.

Officers of the Special Reserve or Territorial Force who have passed through a Royal Army Medical Corps unit of the Officers Training Corps will be granted, on first appointment to the Special Reserve or the Territorial Force, seniority of six months if they have by examination obtained Certificate B (Medical), and seniority of three months if they have obtained Certificate A (Medical).

On mobilisation officers who have obtained Certificate B or Certificate A will be considered for appointments in preference to those not so qualified.

ROYAL NAVAL MEDICAL SERVICE.

The commissions of the following officers have been terminated from August 1st, 1919, the date of their being granted permanent commissions in the R.A.F.: Surg. Cmdrs. H. V. Wells, C. E. C. Stanford, A. W. Iredell, H. Cooper; Surg. Lieut.-Cmdrs. A. V. J. Richardson, W. A. S. Duck, A. E. Panter.

Surg. Capt. C. S. Woodwright to be Surgeon Rear-Admiral.

Surgeon Lieutenants to be Surgeon Lieutenant-Commanders: R. A. W. Ford, C. H. M. Gimlette, W. H. A. Sinclair-Loutit, W. J. Gerrard, R. Buddle, W. P. Vicary, A. C. Shaw, R. K. Shaw, R. A. Brown, A. C. V. Green.

Surgeon Lieutenants (Dental) to be Surgeon Lieutenant-Commanders (Dental): G. E. Wood, J. R. Palmer, W. C. Murray, E. E. Fletcher, F. Thompson, J. F. Place, D. Paterson, R. R. Adams, T. A. B. Corless, J. S. F. Horton, H. M. Meek, P. G. Richards, A. Lawrey, B. J. Geekie.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. E. E. Ellery retires on retired pay.

Majors relinquishing the acting rank of Lieutenant-Colonel: G. H. Stevenson, T. H. Scott (Bt. Lieut.-Col.) J. M. H. Conway.

Majors retiring on retired pay: G. Baillie (on account of ill-health contracted on active service), R. N. Woodley.

Captains to be Majors: (Bt. Majors) C. Ryles, W. E. Marshall, T. J. Mitchell, W. G. Wright, A. J. T. McCreery, S. W. Kyle, D. S. Buist, A. M. Pollard, G. G. Collet, C. Clarke, (Temp. Majors) E. W. Vaughan, G. S. Parkinson, A. N. R. McNeill, A. R. Wright (and to be Brevet Lieutenant-Colonel), T. B. Nicholls, J. B. Jones, J. A. Clarke, S. McK. Saunders, (acting Major) D. H. C. MacArthur, H. Gall, C. H. O'Rorke, J. Startin, G. H. Stack, H. H. Leeson, J. W. Lane.

To be acting Majors: Temp. Capts. E. G. M. Gilchrist, D. Miller.

The undermentioned relinquish the acting rank of Major: Capts. H. R. L'Estrange, A. L. Aymer, H. G. Robertson, H. C. Todd, W. McM. Chesney, F. P. Rankin; Temp. Capts. D. Gillespie, A. H. Greg.

Capt. J. F. W. Meenan, from Special Reserve, to be Captain.

Capt. D. J. H. Jones, from Special Reserve, to be Lieutenant and to be temporary Captain.

Officers relinquishing their commissions: Temp. Lieut.-Col. A. Lingard (and retains the rank of Lieutenant-Colonel), Temp. Capt. H. B. L. Joy (and is granted the rank of Major). Temporary Captains retaining the rank of Captain: S. J. W. Donald, C. L. Driscoll, W. A. Hotson, F. H. Whyte, H. Stewart, H. H. Crickitt, W. H. Booth, N. Purcell, G. L. Neil, W. A. Higgins.

SPECIAL RESERVE OF OFFICERS.

Capt. C. J. Rogerson relinquishes the acting rank of Lieutenant-Colonel.

Capt. T. C. Storey relinquishes the acting rank of Major.

The undermentioned Captains relinquish their commissions: J. J. McI. Shaw (and is granted the rank of Major), J. W. Gray, and I. L. Waddell (retain the rank of Captain).

TERRITORIAL FORCE.

Capt. J. E. Lascelles resigns his commission and retains the rank of Captain.

ROYAL AIR FORCE.

Medical Branch.—Capt. P. McDiamid is transferred to unemployed list. Capt. J. B. Barnett relinquishes his commission on ceasing to be employed, and is permitted to retain his rank.

Dental Branch.—Flying Officer R. H. Moore to be Flight Lieutenant.

INDIAN MEDICAL SERVICE.

Capt. A. A. C. McNeill to be Major.

Maj.-Gen. Patrick Hehir, C.B., C.M.G., C.I.E., I.M.S., has been promoted to be a Knight Commander of the Most Eminent Order of the Indian Empire for services during the operations against Afghanistan.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Reform in the Law of Death Certification.

A JOINT deputation representing the British Medical Association and the medical Members of the House of Commons was received on Tuesday, August 3rd, by Mr. SHORTT (Secretary for Home Affairs) and Dr. ADDISON (Minister of Health) on the question of reform in the law relating to death certification and the procedure of coroners' courts. Mr. BISHOP HARMAN, who presented the case on behalf of the deputation, said the present system of death certification was valueless from the scientific point of view. He urged that death certificates should be in duplicate, one half indicating the fact of death and the other—a private document—should give the actual cause of death. Registration was carried out so loosely at the present time that numerous bodies were buried without being certified by a medical man or made the subject of a coroner's inquest. The object of the coroner's court of inquiry was really to determine the cause of death, and therefore the coroner ought to be a medical man. Mr. HARMAN suggested that he would prefer an officer similar to the Procurator Fiscal in Scotland. The Home Secretary interposed to say that that was according to French law, and in England they regarded the French law as bad. As to the suggestion that the coroner should always be a medical man, Mr. SHORTT said that if that were proposed no doubt the Government would have a deputation of lawyers urging that the coroner should always be a lawyer. Mr. HARMAN went on to argue that the fees provided for medical men who conducted post-mortem examinations and for their attendance at inquests were entirely inadequate. This point was sympathetically received by the Home Secretary. Dr. FARQUHARSON, M.P., pointed out that certain coroners, in accordance with the Act of 1914, conducted private inquiries which saved the cost of an inquest. He suggested that in such cases the coroner should be compelled before granting the right of burial to receive a written statement from a medical man giving his opinion as to whether death was due to natural causes or whether there was suspicion of violence. Dr. ADDISON said that he thought the point was a most important one, and the Home Secretary was sympathetic to a change in the law in this direction. Neither of the Ministers, however, held out any hope that legislation would be introduced on the lines suggested by the deputation.

HOUSE OF LORDS.

FRIDAY, AUGUST 6TH.

Proprietary Medicines Bill.

On the motion that the House go into Committee on the Proprietary Medicines Bill,

Lord BLEDISLOE expressed the hope that no attempt would be made to whittle down the important provisions of the measure. Never had such a tissue of fraud and falsehood been disclosed as was disclosed before the Select Committee in regard to some of these proprietary preparations. Through advertisements in the less reputable section of the newspaper press deception was practised on credulous persons of the servant girl and shop assistant class. In no civilised country in the world was less protection afforded than in the United Kingdom against the class of medicine with which this Bill dealt.

Viscount ASTOR (Parliamentary Secretary to the Ministry of Health) said one of the main objects of the Bill was to protect the health of the public. They had not attempted to deal with profiteering.

The House then went into Committee on the Bill, the Earl of DONOUGHMORE in the chair.

On Clause 1, which provides for the control of the manufacture and sale of proprietary medicines and appliances,

Lord EMMOTT moved to leave out the provision that the ingredients and composition of a proprietary medicine should be set forth on the proposed register of medicines and appliances. Such a provision, he said, might lead to the disclosure of the ingredients to a rival manufacturer. He moved to substitute instead a statutory declaration furnished to the register that the patent medicine was compounded of the ingredients mentioned in the declaration. In the opinion of the manufacturers of these medicines some members of the medical profession were "out" to destroy their trade, with the incidental effect of increasing their own earnings. He, however, was not concerned with that quarrel. His desire was to see justice done to the public. The medicines which were mainly intended for export were harmless syrups, which, like the present Coalition Government, exercised a soothing effect upon a considerable proportion of the country.

Viscount ASTOR resisted the amendment on the ground that it would strike out of the Bill one of its most important provisions. He contended that the administration of the measure would not require a large staff of officials. There was no doubt that sick persons in some cases got worse through treating themselves with proprietary medicines and neglecting the consultation of a medical man. There might be ingredients in proprietary medicines which were not poisonous, but which, if taken in excessive doses, did in fact injure the health of those who took them. He did not, however, wish to create a prejudice against patent medicines generally, or to suggest that all these proprietary remedies were injurious.

Lord DAWSON of PENN pointed out that the Bill would protect the public from combinations of drugs that might be harmful.

Lord RIDDELL urged that they were dealing with a very big business in which millions of capital were involved. The taking of patent medicines was a recreation with many people. He did not suppose that patent medicines had a monopoly of poisoning. People had been poisoned by doctors and otherwise. It was most important in the interest of the public that a careful measure should be devised, and he did not regard the present Bill as such a measure, more particularly in its provisions with respect to registration.

Viscount ASTOR said that the Ministry of Health did not wish to do anything that would harass the public, or injure the legitimate interests of the trade. The Ministry would do everything it could to ascertain what the trade had to say with a view to additional safeguards being introduced if they were found to be necessary. It was, however, right that the ingredients of these preparations should be disclosed confidentially to the Ministry.

The amendment was withdrawn.

On Clause 3, which deals with offences in connexion with the advertising of these remedies, an amendment moved by Lord EMMOTT to delete paragraph (a), which provided that a person should be guilty of an offence if he enclosed with or in the parcel or wrapper containing a proprietary medicine or surgical appliance any written matter (not being an ordinary trade catalogue) advertising the use of another proprietary medicine or surgical appliance, was agreed to.

Viscount ASTOR moved an amendment to Clause 4 (registered medicines and appliances), providing that the Registrar should not furnish any copy of extract from any formulæ relating to any registered medicine to any person other than the registered owner.

The amendment was agreed to.

Lord BLEDISLOE moved an amendment to Clause 5, which deals with regulations, requiring that in the case of any synthetic drug sold as a proprietary medicine the chemical name should appear on the label and in every advertisement relating to it.

The amendment was agreed to.

On the motion of Lord BLEDISLOE, it was also agreed to increase the maximum amount of the fine for a misdemeanour under the Bill from £100 to £500, and for any other offence under its provisions from £20 to £50.

The remaining clauses of the Bill were passed without amendment, and the measure as amended was then reported to the House.

HOUSE OF COMMONS.

WEDNESDAY, AUGUST 4TH.

Cost of the Housing Shortage.

Mr. BRIANT asked the Minister of Health if he would state what was the total sum of money required to make good the shortage of houses in the United Kingdom; and how was it proposed to provide this sum.—Dr. ADDISON replied: At present prices I estimate that the capital sum required to make good the shortage of houses will amount to approximately £120,000,000 a year. I hope that the sum needed will be provided as it is required by the investment of their savings by the people of this country.

Shortage of 800,000 Houses in England and Wales.

Major ENTWISTLE asked the Minister of Health if he would state what was now the total estimated shortage of houses in the United Kingdom.—Dr. ADDISON replied: Housing in Scotland and Ireland does not come within the purview of my department, but in England and Wales the total estimated need as disclosed by surveys made by local authorities in pursuance of Section 1 of the Housing Act, 1919, amounted in gross to 800,000 houses, taking account of replacements of existing unsatisfactory houses.

Soldier's Death at Edmonton Infirmary.

Sir PHILIP PILDITCH asked the Secretary for War if he proposed to give effect to the verdict of the coroner's jury in the case of the death of Private George William Henry Elsley, at Edmonton Infirmary on July 9th, calling upon the military authorities to hold an inquiry, which verdict had been conveyed to the War Office.—Mr. CHURCHILL replied: This case is still the subject of investigation by the military authorities, and I will let the honourable Member know the result as soon as possible.

Pensions of Dependents of Indian Officers.

Colonel YATE asked the Secretary of State for India if he could now state what decision had been arrived at on the subject of an increase in the pensions of the widows, children, and dependents of deceased officers of the Indian Army, the Indian Medical Service, and the Royal Indian Marine.—Mr. MONTAGU replied: So far as the widows, children, and other dependents of officers of the Indian Services who lost their lives in the Great War are concerned the benefits admissible have been substantially improved by the Warrant of July 2nd, 1920, the main provisions of which will be applied to the Indian Services. As regards the dependents of officers who died before the war, or whose death was not due to service in the war, I much regret that it has not yet been possible to come to a decision, as it has been necessary to take into consideration the effects of the provisions of the Pensions Increase Bill which is now before the House. I can assure my honourable and gallant friend that I will do all in my power to expedite a decision.—Colonel YATE: Does the decision on this matter rest on the passing of this Bill now before the House, or when will a decision be come to?—Mr. MONTAGU: No, it does not rest on the passage, but it does rest on the consideration of these provisions.—Colonel YATE: Can the right honourable gentlemen say when these provisions will be considered?—Mr. MONTAGU: We are considering the matter now. It is very urgent to come to an immediate decision, and I am trying to get a decision as quickly as possible.

THURSDAY, AUGUST 5TH.

Women and the Welsh Board of Health.

Major BREESE asked the Minister of Health whether, in the selection of members to serve on the Board of Health for Wales, he proposed to appoint one or more women; and, if not, would he state the reason.—Dr. ADDISON replied: I can assure the honourable and gallant Member that the question of appointing a woman member of the Welsh Board of Health has received my serious consideration, but as it is probable that the number of members already appointed will be found sufficient for the work I do not consider that it would be justifiable to add to that number at the present time.

Sports Associations and the Open Spaces Bill.

Mr. JOHN DAVISON asked the Lord Privy Seal whether he was aware that sports associations throughout the country were desirous of sending a representative deputation to him to urge the necessity in the interests of the health and recreation of the people of the passage of the Open Spaces Bill; and whether he would receive the deputation at an early date in order to ascertain from them the volume of opinion in favour of the Bill and of its early passage into law.—Mr. BONAR LAW replied: I doubt whether any useful purpose would be served by receiving a deputation on this subject, but I shall discuss it with my right honourable friend, the Minister of Health, whose department is concerned in it, and let the honourable Member know whether it is possible for my right honourable friend or myself to receive the deputation.

MONDAY, AUGUST 9TH.

Conditions of Hospital Probationers.

Viscountess ASTOR asked the Minister of Health whether his attention had been drawn to the conditions under which nursing probationers in many London hospitals at present worked, especially with regard to housing accommodation and hours and conditions of duty; and whether he would consider recommending reforms in these connexions to all hospitals in receipt of State grants for the benefit both of probationers and of the nursing profession generally.—Dr. ADDISON replied: I am fully aware of the unsatisfactory conditions under which many probationer nurses are at present employed, and any steps which the General Nursing Council may propose to remedy this state of affairs will have my sympathetic consideration. State grants, however, are only paid in respect of the treatment of certain specified diseases, and I do not think it would be practicable to attach to them conditions such as the honourable Member suggests.

Facilities for Visiting Service Men in Hospitals.

Mr. W. H. SMITH asked the Minister of Transport whether he was aware that a large number of soldiers still in hospital at a distance from their homes were without the necessary means to enable them on occasion to visit their families, and that the members of their families for the same reason are unable to visit the hospitals; and whether he would consider the possibility of these men or their families being granted travelling facilities at cheap rates.—Sir ERIC GEDDES replied: I have every sympathy with the case of soldiers still in hospital and their desire to see their families. I am not, however, in favour of piecemeal concessions. The treatment of disabled soldiers and sailors must

be regarded as a whole, and I do not think any portion of the cost should in an indirect way be borne by the Railway Agreements Vote. It is a matter for the War Office, Minister of Labour, or Minister of Pensions, not for the Minister of Transport.

TUESDAY, AUGUST 10TH.

London University Site.

Mr. LORDEN asked the Chancellor of the Exchequer whether, as the Senate of London University had not accepted the offer of the Government of a site in Bloomsbury, he would say if, in the event of the Senate of London University approving Kenwood, Highgate, as a suitable site for the University, the Government would provide similar financial aid equal to the cost of the Bloomsbury site.—Mr. CHAMBERLAIN replied: No, Sir. The offer of the Bloomsbury site afforded the Senate an opportunity of establishing the University close to the British Museum with its unrivalled facilities for students and of collecting in one group the central buildings of the University and its principal constituent colleges. The purpose of the offer was to enable the University to rise to the high level of its opportunities and duties as the Metropolitan University of the Empire. This purpose would not be secured by the selection of another site not affording the same facilities, and H.M. Government would not feel justified in calling upon the general taxpayer for such an extraordinary contribution upon any other grounds.

Prison Medical Officers.

Mr. HANCOCK asked the Home Secretary whether he would consider the desirability of the transfer of the prison medical service to the Ministry of Health and of prison education to the Board of Education.—Mr. SHORTT said in reply: The arrangements for maintaining the health of prisoners and providing means of education are intimately bound up with general questions of prison administration, and it is most undesirable that the responsibility for this should be divided between three separate departments of Government.

Assaults upon Children.

Viscountess ASTOR asked the Home Secretary whether he was aware of the increase in the number of cases of criminal or indecent assaults on children; and whether, in view of the seriousness of the offence, he would consider the advisability of taking steps so that the sentences which could be imposed under summary jurisdiction should be increased, or that all such cases should be tried before a superior court.—Mr. SHORTT replied: No evidence of any general increase in the number of assaults on children has been brought to my notice. If the honourable Member will let me have any evidence on this point that she may have in her possession I will consider the matter further.

Medical Officers in the Colonial Service.

Lieutenant-Colonel FREMANTLE asked the Under Secretary for the Colonies whether there was at present a shortage of medical officers in the Colonial Service; whether this was an obstacle to the health and development of the colonies, and was largely due to the comparative unattractiveness of the Service; whether he had now received and would publish the report of the Committee which had recently investigated the subject; and would he state in what way and how soon he proposed to introduce the required and obvious remedies.—Colonel AMERY replied: I am aware that the shortage to which my honourable friend refers does exist, and that it is by no means confined to the Colonial Service. Improvements in the pay of medical officers have already been carried out in the majority of colonies and protectorates. The Secretary of State has recently received the report of the Committee referred to. It requires careful consideration, and I am not yet in a position to say what action will be taken upon it or whether it will be published.

Director-General of the Army Medical Service.

Lieutenant-Colonel FREMANTLE asked the Secretary for War whether he had considered the advisability of guarding against the breakdown of medical arrangements and of securing greater physical efficiency in military operations by placing the Director-General of the Army Medical Service on the Army Council with responsibility and power to secure the full consideration of health matters and the execution of all medical arrangements.—Mr. CHURCHILL said in reply: Whenever matters affecting medical organisation or administration are under consideration the Director-General of the Army Medical Service is called upon to give the Army Council the benefit of his advice. I do not think, therefore, that there is any advantage to be gained by making him a Member of Council.

Lieutenant-Colonel FREMANTLE: Is it not realised that the Director-General has to deal with a very large number of medical problems that arise in connexion with strategic questions on which he alone can give an opinion?—Mr. CHURCHILL: That point has been very carefully considered. We have the benefit of the advice of the Director-General of the Medical Services at any time, and of a great many other very highly skilled technical officers, but that is not a reason for adding these officers to the Army Council.—Lieutenant-Colonel FREMANTLE: How does the right honourable gentleman propose to get over the difficulties of hospital arrangement in a campaign coming under the head of three departments with three different members of the Army Council? There must surely be divided counsel.—Mr. CHURCHILL: I do not think there is any great difficulty in practice arising from that.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Final Examination, held from July 6th to 27th, the following candidates were approved in the undermentioned subjects:—

Medicine.—Doris Elizabeth Alcock, Royal Free; O. A. Baker, Univ. Coll.; Marjorie Muriel Sibley Bartlett, Royal Free and St. George's; Ivy Constance Beach, St. Mary's; A. H. Bean and A. Bearblock, Univ. Coll.; C. H. Bracewell, St. Bart.'s; Hylda Catherine Briscoe, Royal Free and St. Mary's; C. G. Bryan, London; A. Y. Cantin, London and Paris; G. H. A. P. Clavier, London; Beatrice Lakeman Collins, King's Coll. and St. George's; Elsie Eleanor Cowperthwaite, Royal Free and St. Mary's; F. P. de Caux, St. Bart.'s; A. H. G. Down, Univ. Coll.; T. A. Eccles, St. Bart.'s; R. W. Fairfax, Charing Cross; M. R. Flynn, Sydney; O. P. Gallegos, Charing Cross; R. M. Galloway, Edinburgh; W. R. W. Haight, Toronto Univ.; C. K. J. Hamilton, St. Thomas's and Oxford; H. W. Hammond, St. Bart.'s; I. Harris, Liverpool; Joan Margaret Redford Harris and Eleanor Harse, Royal Free; F. Hiam, Middlesex; J. T. S. Hoey, Oxford and St. Thomas's; S. H. G. Humfrey, Cambridge and St. Thomas's; M. F. Ismail, Guy's; R. O. Jones, Liverpool; A. E. Kassem, Guy's; Margaret Hypatia Kingsford, Royal Free; F. C. Lewis, Liverpool; E. T. Lloyd, Guy's; Kathleen Maria Boyce McArthur, St. Mary's; R. A. McCabe, Middlesex; Elisabeth Esther McCulloch, Liverpool; H. A. C. Main, St. Mary's; E. J. Newton, Royal Free; T. D. Overend, Univ. Coll.; Alice Owen, Dorothy Pantin, and Winifred Peacey, Royal Free; Arulmani Pichaimuthu, Charing Cross; Winifred Catherine Piggott and Norah Katharine Priestley, Royal Free; J. S. Robinson, Manchester; W. G. Rose, St. Mary's; Frederick M. Rossiter, Pennsylvania and Univ. Coll.; A. R. Roushdy, Charing Cross; Maud Sanderson, St. Mary's; Constance Snowdon, Manchester; G. W. Theobald, Cambridge and St. Bart.'s; H. E. Thomas, Univ. Coll.; N. G. Thomson, St. Bart.'s; C. J. A. Tjon-A-Man, Middlesex; Mary Isabel Turner, Manchester; Madeline Hilda Jane Umpleby, St. George's; Constance Muriel Willis, St. Mary's; E. F. Wilson, Guy's; and Beryl Wiseham, London.

Midwifery.—R. B. Agaskar, Middlesex; C. H. Andrewes, St. Bart.'s; L. H. Appleby, Queen's Univ.; T. J. D. Atteridge, St. Bart.'s; E. T. Bailey, Middlesex; W. E. Barnes, Univ. Coll.; S. H. Barnett, Cambridge and St. Thomas's; H. E. Beasley, Univ. Coll.; E. F. H. Bell, Durham; M. Bharatan, Madras and King's Coll.; H. J. Bhatia, Bombay; W. Breakell, Cambridge and Univ. Coll.; C. G. Bryan, London; F. C. W. Capps, St. Bart.'s; D. S. Chamberlain, King's Coll.; S. B. Chambers, Charing Cross; Dorothy Alice Denman Cropper, Cambridge and Edinburgh; P. T. Davidson, Middlesex; H. K. Denham, St. Bart.'s; A. G. Duncan, London; E. W. Evans, Birmingham; E. C. Faraker, Guy's; A. J. Fenn, King's Coll.; J. Franks, London; H. Freeman, Westminster; E. Gallop, St. Bart.'s; R. M. Galloway, Edinburgh; M. Garden and Janet Katherine Gatty, Univ. Coll.; J. B. Gregor, Guy's; B. J. Hallowes, St. Bart.'s; C. B. Hawthorne, Cambridge and Birmingham; W. E. Hayes, Oxford and St. Bart.'s; S. Hazeldine, Univ. Coll.; J. W. Hirst, Cambridge and King's Coll.; J. W. Hulme, Middlesex; B. L. Jeaffreson, St. Bart.'s; W. D. Jenkins, Middlesex; L. M. Jennings, St. Bart.'s; T. T. Jones, Manchester; E. J. L. Jones-Evans, St. Thomas's; H. C. V. Joy and M. Korn, London; F. G. Latham, Liverpool; H. D. Lawson, London; Bessie Levin, Univ. Coll.; E. O. Lewis, Cambridge and Univ. Coll.; I. Lewis, Univ. Coll.; D. McClean, St. Thomas's; Elizabeth Kathleen Mackay, Oxford and Charing Cross; C. C. Mackinnon, Middlesex; O. T. Maclaren, Guy's; Elizabeth Matthai, Royal Free; G. G. Michell, Univ. Coll.; W. P. Newman, St. Thomas's; E. J. Newton, Royal Free; S. Orchard, Cambridge and St. Bart.'s; Winifred Peacey, Royal Free; T. L. Pires, Charing Cross; J. J. Redelinghuys, Univ. Coll.; B. T. Richards, Birmingham; P. L. Richardson, Guy's; J. S. Robinson, Manchester; Mary Frances Roope, Charing Cross; I. Rosenberg, Guy's; F. M. Rossiter, Pennsylvania and Univ. Coll.; Maud Sanderson, St. Mary's; E. T. Saravanamuttu, Madras and Edinburgh; C. I. Schiff, London; Florence Gertrude Sherry, Manchester; M. Sidky, Guy's; G. S. Sinnatamby, Ceylon; Elfrida Elizabeth Ada Spencer, Charing Cross; H. Spibey, Cambridge and Univ. Coll.; P. Steinberg, London; R. N. L. Symes, St. Thomas's; H. B. Taylor, St. Mary's; E. W. C. Thomas, St. Bart.'s; D. R. Thompson and J. P. Traylen, London; Mary Isabel Turner, Manchester; J. C. Twomey, Liverpool; V. A. van Geyzel, Middlesex; Mary Gwendolen Vaughan, King's Coll.; J. G. Walker, Charing Cross; R. A. Walker, St. Thomas's; W. J. G. Walker, Univ. Coll.; L. K. Watson, Guy's; R. Weaver, Belfast; Agnes Edie Westwood, St. Mary's; Valentine Wilkinson, Cambridge and Univ. Coll.; W. H. Williams, Charing Cross; Constance Muriel Willis, St. Mary's; and W. C. S. Wood, King's Coll.

Surgery.—F. F. Abdulhah, St. Mary's; G. W. Almeyda, London; Joan Katharine Somerville Cave, Royal Free; R. D. Cowan, Univ. Coll.; E. J. Crisp, Guy's; I. G. de Zilva, Madras; F. H. Edwards, Liverpool; Madeline Giles, St. Mary's; W. Göthe,

Middlesex; G. E. Hayward, Manchester; H. J. H. Hendley, Cambridge and St. Bart.'s; R. O. Jones, Liverpool; M. H. K. Kane and I. Lewis, Univ. Coll.; A. Maude, Manchester; E. O. Morrison, Cambridge and St. Mary's; S. Orchard, Cambridge and St. Bart.'s; Dorothy Pantin, Royal Free; A. S. Pearson, Birmingham; Winifred Catherine Piggott, Royal Free; A. D. Porter, King's Coll.; J. L. Potts, Cambridge and St. Bart.'s; A. M. Ramsy, Cairo and Charing Cross; W. Remington, Guy's; W. G. Rose, St. Mary's; G. R. A. de M. Rudolf, King's Coll.; R. G. V. Shaw, Sydney; F. V. Squires, Cambridge and St. Thomas's; J. A. Stephens, Leeds; A. H. Talaat, Middlesex; K. H. Tallerman, Cambridge and St. Thomas's; B. W. Thompson, Cambridge and St. Bart.'s; F. I. G. Tweedie and A. R. Walker, Cambridge and St. Thomas's; K. T. K. Wallington, Univ. Coll.; and H. N. Witham, St. Thomas's.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—At the last meeting of the Comitia, in addition to the business reported last week, the following recommendations were received from the Committee of Management:—

(1) That the University of Groningen be added to the list of universities recognised by the Examining Board in England.

(2) That candidates who have completed the courses of instruction and passed the examination in anatomy and physiology for the science degree of the University of Cape Town, be exempted from passing the second examination of the Examining Board in England.

(3) That the courses of instruction in anatomy and physiology at the South African School of Mines and Technology, Johannesburg, a College affiliated to the University of Cape Town, be accepted as fulfilling the requirements of the Regulations of the Examining Board in England in regard to the study of these subjects.

(4) That the requirement that a candidate should have attained the age of 23 years and 24 years before entrance to Examination in Parts I. and II. respectively, for the diploma in public health, be omitted from the Regulations for that diploma.

The Committee recommend that the following schools be added to the list of institutions recognised by the Board for Instruction in Chemistry and Physics—namely, County Borough of Blackpool Secondary School, Caterham School, Bishop's Stortford College, and the Victoria Institute, Worcester; and that the Coventry and Warwickshire Hospital be added to the list of recognised hospitals. The Committee recommend that the following be added to the list of institutions whose graduates in medicine are admissible to the final examination of the Examining Board in England under the conditions of Paragraph IV., Sections III. and IV. of the Regulations—viz: The State University of Ohio, the University of North Dakota, the University of Kansas City, the University of Hong Kong, the University of Virginia.

Sir Charles Ballance, on the recommendation of the Committee, was appointed visitor to the examinations of the Egyptian School of Medicine for the next period of examination.

THE National Association for the Prevention of Consumption and Other Forms of Tuberculosis is holding its eighth annual conference in St. George's Hall, Liverpool, from Thursday to Saturday, Oct. 7th-9th. Special attention will be devoted to preventive measures.

UNIVERSITY OF LONDON: THE DIPLOMA IN PSYCHOLOGICAL MEDICINE.—The University of London has instituted recently a diploma in Psychological Medicine, the regulations for the obtaining of which have now been published. The examination is held twice in each year and is divided into two parts, Part A being held in March and October and Part B in April and November, and only for candidates who have passed Part A. Part A deals with the anatomy, histology, and physiology of the nervous system, one paper being also set in psychology. For Part B the candidates are examined in neurology and psychological medicine, the papers containing alternative sections enabling the candidate to specialise. Before being admitted to Part B the candidate must hold for six months a resident appointment at an institution for mental diseases, or attend for a year the practice therein, or pursue similar studies, with the approval of the University, in some other direction. Further information as to fees and syllabus will be given, on application, by the University Extension Registrar, Mr. John Lea, M.A., University of London, South Kensington.

LITERARY INTELLIGENCE.—Messrs. J. and A. Churchill announce for publication the following new books and new editions:—"The Anatomy of the Human Skeleton," second edition, by J. E. S. Frazer, F.R.C.S.; "Massage, its Principles and Practice," second edition, by J. B. Mennell, M.D.; "A Manual on Dental Metallurgy," fourth edition, by E. A. Smith; "A Handbook of Physics and Chemistry," fifth edition, by H. E. Corbin and A. M. Stewart; "A Textbook of Materia Medica," third edition, by Professor H. G. Greenish; "Catalysis and its Industrial Application," second edition, by E. Jobling, A.R.C.Sc.; and "A Synopsis of Hygiene," especially intended for those studying for a diploma in public health, by W. W. Jameson, M.D., and F. T. Marchant, M.R. San. Inst.—Messrs. Williams and Wilkins Company, London and Baltimore, announce the forthcoming appearance of "The Determination of Hydrogen Ions" by W. Mansfield Clark, Ph.D., containing numerous illustrations, an indicator chart in colours, and a bibliography of 1100 references. The price in England will be $5.50.

FEES FOR EXAMINATION FOR LIFE INSURANCE.—There has been discontent for a considerable time in the medical profession of Ireland over the inadequacy of the guinea fee as remuneration for an examination for life insurance. Some months ago several medical examiners declined to report for one guinea and demanded a fee of two guineas. In most cases the increased fee was readily paid. The Council of the Irish Medical Association then took the matter up and decided on a standard fee of two guineas, with the concession that in the case of small insurances (for policies of less than £500) one guinea would be accepted. More recently the medical examiners resident in Dublin held a meeting under the presidency of the President of the Royal College of Physicians, and decided to adopt the standard laid down by the Council of the Irish Medical Association. Notice has been given to the various insurance offices in Dublin of the decision of the meeting, and it is expected that the larger fee will be readily paid.

LONDON SCHOOL OF MEDICINE FOR WOMEN.—A post-graduate course of instruction in the treatment of venereal diseases will be held during the fortnight beginning Monday, Sept. 13th, for qualified medical women. The course is in connexion with the London (Royal Free Hospital) School of Medicine for Women and the Royal Free Hospital, the Elizabeth Garrett Anderson and the London Lock Hospitals. Application for admission to the course should be made to the Secretary, Medical School, 8, Hunter-street, London, W.C.1., from whom particulars can be obtained.

The following scholarships have been awarded from October next:—

St. Dunstan's Medical Exhibition: Miss E. Masterman (Hamilton House School, Tunbridge Wells).
Isabel Thorne Scholarship: Miss E. Adams Clarke (Sydenham High School).
Mabel Sharman Crawford Scholarship: Miss F. I. Moore.
Sir Owen Roberts Memorial Scholarship: Miss M. Bowstead.
Lewis Memorial Scholarship: Miss E. H. R. Newboult.

Appointments.

EVANS, D. E., M.B. Lond., has been appointed an additional Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 31, attached more particularly to the Neath and Aberavon County Courts.

GOODWIN, A., O.B.E., M.D., B.S. Lond., F.R.C.S. Edin., Obstetric Tutor to the Westminster Hospital.

LEWIS, E. C., M.B., M.S., F.R.C.S., Assistant Surgeon to the Royal Free Hospital.

SALISBURY-SHARPE, W., M.D., F.R.C.S.I., Assistant Surgeon to the Central London Throat and Ear Hospital.

SINCLAIR, N. F., F.R.C.S. Eng. & Edin., Assistant Surgeon to the West London Hospital.

Vacancies.

For further information refer to the advertisement columns.

Barnsley, Beckett Hospital and Dispensary.—Sen. H.S. £250.
Battersea General Hospital (incorporated), Battersea Park, S.W.—Third Res. M.O. £200.
Belfast County Borough.—Bacteriologist and Pathologist. £700.
Bellahouston Hospital, Glasgow, Ministry of Pensions.—Med. Electrician. £650. Pathologist. £300. Two Anæsth.'s. £350 or £450. Three P.'s or S.'s. £450
Bengal, University of Dacca.—Chair of Physical Education. Rs. 9000 to Rs. 12,000.
Berks and Bucks Joint Sanatorium, Peppard Common, Oxon.—Asst. Res. M.O. £350.
Birmingham Children's Hospital.—Jun. Vis. Anæsth. £50. Res. M.O. £150.
Birmingham City Hospital for Infectious Diseases.—Asst. Res. M.O. £350.
Birmingham General Hospital.—Res. M.O. £155. Res. Anæsth. £100. H.S. £125.
Birmingham University.—Lect. in Physiology. £250. Demonstrator in Pathology. £350.
Blackburn and East Lancashire Royal Infirmary.—Jun. H.S. £250.
Bristol Eye Hospital.—H.S. £150.
Canterbury, Chartham Mental Hospital.—Asst. M.O. £350.
Colonial Service.—M.O.'s for West African Medical Staff, Government Service in Malaya, East African Protectorates, West Indies (including British Guiana), Fiji, and the Western Pacific, &c.
Coventry Education Committee.—Two Sch. Dentists. £500.
Derby Borough Mental Hospital.—Asst. M.O. £350.
Dorset County Council.—Asst. County M.O.'s. £500.
Dreadnought Hospital, Greenwich.—H.S. and H.P. £100.
Dumfries, Crichton Royal.—Asst. P. £350.
East Ham Education Committee.—Sch. Aurist.
Essex Education Committee.—Sch. Med. Inspec. £500.

Glasgow, Victoria Infirmary.—Jun. Asst. P. £100. Med. Tutor. £300.
Great Yarmouth General Hospital.—H.S. £250.
Hampstead General and North-West London Hospital, N.W.—Clin. Asst., Ear, Nose, and Throat.
Hertford County Hospital.—H.S. £200.
Hospital for Consumption and Diseases of the Chest, Brompton.—H.P.
Huddersfield Royal Infirmary.—Asst. H.S. £150.
Ingham Infirmary and South Shields and Westoe Dispensary.—Jun. H.S. £175.
Isle of Wight, Royal National Hospital for Consumption, Ventnor.—Locum Asst. Res. M.O. 6 guineas per week.
Lancashire County Council, Rufford Sanatorium and Training Centre.—Med. Supt. £800.
Leasowe Hospital for Children, Cheshire.—Jun. Res. M.O. £200.
Leeds University, School of Medicine.—Lect. in Exper. Phys. £500.
Lincoln County Hospital.—Jun. H.S. £150.
Liverpool, David Lewis Northern Hospital.—Two H.P.'s and Three H.S.'s. £120.
Liverpool, Royal Southern Hospital.—Two H.P.'s and Three H.S.'s. £100.
Liverpool School of Tropical Medicine.—Three Medical Men for Clinical and Research Work in Tropical Medicine.
London County Council Mental Hospital Service.—Asst. M.O.'s.
London Lock Hospital, Soho, W.—H.S. £200.
London Temperance Hospital, Hampstead-road, N.W.—Cas. O. £200. Radiographer. £105. H.P. £120.
London University.—William Julius Mickle Fellowship. £200.
M.A.B. Tuberculosis Service.—Asst. M.O.'s at Margate, £515; at Brentwood, £579.
Maidstone, Kent County Mental Hospital.—Jun. Asst. M.O. £300.
Manchester, Ancoats Hospital.—H.S. £150.
Manchester, Barnes Convalescent Hospital, Cheadle.—Res. M.O. £300.
Manchester Children's Hospital, Pendlebury, near Manchester.—Two Res. M.O.'s. £150.
Manchester Royal Eye Hospital.—Jun. H.S. £120.
Margate, Royal Sea Bathing Hospital.—Res. S. £200.
Metropolitan Borough of Wandsworth.—Asst. Tuberc. O. £818.
Middlesbrough, North Ormesby Hospital.—Asst. H.S. £175.
Natal, Corporation of Durban.—M.O. for Mat. and Child Welf. £700.
Neath (Glamorganshire), Beckett's Park (near Leeds), and Ashurst (Oxford), Ministry of Pensions Hospitals.—Pathologists. £600.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Temp. Hon. S. Also Refractionist. £200.
Newcastle-upon-Tyne, University of Durham College of Medicine.—Sen. and Jun. Demonstrators of Anatomy. £450 and £350 respectively.
Orkney, Parish of Rousay and Egilshay.—Res. M.O. £300.
Portsmouth Education Committee.—Asst. School M.O. £500.
Queen Mary's Hospital, Stratford, E.—H.P.
Salford Union Infirmary.—Res. Asst. M.O. £350.
Scarborough Education Committee.—Sch. Dent. S. £250.
Sheffield Royal Infirmary.—H.P. £150.
Staffordshire Education Committee.—Twelve Med. Practs. £600.
Stafford, Staffordshire General Infirmary.—H.S. £250.
Stockport General Infirmary.—Jun. Res. S. £200.
Surrey County Council.—Tuberc. M.O. £770.
Taunton and Somerset Hospital.—Sen. and Jun. H.S.'s. £200 and £150.
Tottenham Education Committee.—Asst. Sch. M.O. £650.
Windsor, King Edward VII. Hospital.—H.S. £200.
Wolverhampton and Staffordshire General Hospital.—H.S. £200.
Woodilee Mental Hospital, Lenzie, near Glasgow.—Asst. M.O. £350.

The Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Nottingham, N.

Births, Marriages, and Deaths.

BIRTHS.

BOYLE.—On August 9th, the wife of Dr. Boyle, Disley, Cheshire, of a daughter.
MCCREA.—On July 31st, the wife of H. Moreland McCrea, M.D., Devonshire-place, W., of a daughter.
MARTYN.—On July 30th, at Zeitone, Cairo, the wife of Captain A. F. C. Martyn, R.A.M.C., of a son.
WATSON.—On August 9th, to Dr. and Mrs. G. W. Watson, of Park-square, Leeds –a son.

MARRIAGES.

JEX-BLAKE—HERBERT.—On Thursday, August 5th, in the Parish Church at Wilton, by the Bishop of Salisbury, assisted by the Rev. Guy Campbell, Arthur John Jex-Blake, M.D. Oxon., F.R.C.P., of 13, Ennismore Gardens, London, to Muriel Katharine Herbert, younger daughter of the late Earl of Pembroke, of Wilton House, Salisbury.
REVELL—ANDREW.—On August 4th, at Lawhitton, Launceston, Rowan William Revell, M.B., B.S. Lond., D.P.H., to Edith Mary Andrew, daughter of the late M. Andrew.
SUTHERLAND—FITZPATRICK.—On August 4th, at St. Joseph's Retreat, Highgate-hill, N., Halliday Gibson Sutherland, M.D., to Muriel Fitzpatrick, daughter of the late John Frederick Fitzpatrick and Mrs. Fitzpatrick, of Cromwell-avenue, Highgate-hill, N.
WATTS—DUNHAM.—On August 7th, at St. Stephen's Tonbridge, Harry John Manning Watts, M.R.C.S., L.R.C.P., to Winifred Mary, second daughter of Henry Symes Dunham, of Bankside, Tonbridge.

DEATHS.

EWART.—On August 1st, very suddenly, at his residence, Eastbourne, John Henry Ewart, M.R.C.S., L.R.C.P., aged 73 years.
RHODES.—On August 5th, at Brechin-place, S.W., J. Herbert Rhodes, M.B., M.R.C.P., aged 45 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A SKETCH OF SEVENTY YEARS.[1]

By T. PRIDGIN TEALE, M.A. OXON., F.R.S.

THINKING over my subject, I am almost "snowed under" by the number of questions that arise before me deserving serious notice. I can therefore only select those which, on looking back upon this momentous period, seem to demand attention mainly as enforcing principles, passing by with severe abstention many events and important points which tempt to digression.

Let me begin by being egotistical, and by referring to the earlier years of the Leeds School of Medicine. My medical education began in the summer of 1849, when on leaving school (Winchester) I became a pupil of the surgical practice of the Leeds Infirmary. Of this I was a regular attendant during the vacations of the three years I passed as an Oxford undergraduate at Brasenose. During these vacations I accompanied my father in his ward visits on all operations by him and his colleagues ("Sam" Smith and William Hey) and in all emergency night calls, which were numerous owing to the frequent accidents in the construction of the Arthington Tunnel. On leaving Oxford in the summer of 1852 I became a pupil of the Medical Department of King's College, London, where Fergusson and Bowman were on the surgical staff; Todd, Budd, and George Johnson were on the medical staff; Partridge and Beale were on the lecturing staff.

What was my position on commencing lectures on anatomy and physiology and on work in the dissecting-room? I entered upon these studies, having witnessed, in the companionship of my father, nearly every surgical operation then in use, and I had attended and noted every post-mortem for which my vacations at Leeds afforded the opportunity. Think what this meant in giving reality and intense human interest to a beginner in the medical curriculum. I make a point of this in order to emphasise what I feel about the training of a doctor.

The Evolution of the Leeds School of Medicine.

With these preliminary remarks let me tell of the evolution of the Leeds School of Medicine, making use of a passage from the address I gave to this society in 1903. The Leeds School of Medicine practically began its career as a complete school in October, 1831, in rooms in the old dispensary at the top of Templar-street, and my father gave the opening lecture. At the end of three years the Council purchased a "very commodious building"—in fact, a good double dwelling-house—at the corner of East Parade, hard by the infirmary. In this house a front and back sitting-room were thrown into one to make a museum, and a first-floor room was converted into a theatre for about 25 students. A small narrow dressing-room was made into a place for injecting "subjects" which were brought up from below through a trap door. Skylights were put into the attics to convert them into a dissecting-room.

On the benches during the opening years there sat as students Sir Spencer Wells, Dr. Chadwick, senr., Mr. Samuel Hey, and Sir William Priestley. Inadequate as such a building would seem to us now, it was at the time not inferior to the buildings of the other provincial schools, and, aided by the teaching at the infirmary, it raised the Leeds School to a reputation not the least among the medical schools of England.

The next stage occurred in this way. As soon as a site in Great George-street was selected for the new infirmary some of the staff felt that the school must follow the infirmary, and not be left at the distance of one-third of a mile. A committee, consisting of Dr. Heaton, Mr. Wheelhouse, and myself, was appointed and the site in Park-street was purchased. Having bought the site we set to work to plan for ourselves so as to make the best possible use of the ground. We then selected an architect and put our provisional plans into his hands; he, of course, absorbed our ideas and improved upon them.

Such was the new school in Park-street—now the abode of the Thoresby Society—and it was, I believe, at that time the only school in the provinces built for the special purpose, and was far in advance of the provincial schools then in existence. This was in 1864, the year of the laying of the foundation stone of the new infirmary. The opening address was given on October 2nd, 1865, by Sir James Paget, and the following passage may well be quoted therefrom.

[1] An address to the University of Leeds Medical Society, Dec. 5th, 1919.

"This only I will say, that from the beginning to the end of your career, and day by day, you must study diseases and their treatment in actual practice. There is nothing of which the observation of the careers of students has made me more sure than of this. If I except the few—the unhappily too few—who, after taking high degrees in the universities, have studied medicine, I should say that as a constant rule the best students, and they who have proved themselves the best not only in the schools but in after life, have been those who, in the beginning of their studies and for the most part before attending lectures, have been pupils in provincial hospitals, or with active and intelligent general practitioners, who have enabled them to see practice every day and helped them to study it.

"I am aware that this opinion—that the study of actual practice should extend through the whole period of medical education—is not held by some who have carefully thought upon the subject. They would not have this practical study, as I would—first, last, and in the midst of all. I have, therefore, again and again considered the point; but the fact always remains to me convincing, and not strange, that the best students are those who have from first to last, and always, combined the study of actual practice with that of the principles and foundations of our profession; or who, if they have begun with one of these, have begun with practice, and then studied the principles together with it."

As time went on the growth of the school and of the Yorkshire College led to the union of the two bodies in the University of Leeds. The work of the medical department was carried on for a time in the school in Park-street. It soon, however, became evident that even our "new school" was inadequate to meet the rapidly increasing demands of medical education, especially as it has to be carried on by a University College. The result, you all know, is the present School of Medicine.

Personnel of the School of Medicine.

Having dealt with the buildings we may turn to the personnel of those who had to use them as teachers or pupils. Looking back to the early days, the days preceding the removal of the school of 1834 to the new building in Park-street, 1832–65, and of the infirmary to its enlarged site in Great George-street, 1869, it must be borne in mind how the commencement of the School of Medicine was made by a certain number of medical men who had pupils or apprentices for whom they wished to provide teaching in the earlier subjects of study—anatomy, physiology, chemistry. The result of this was that they themselves, in the midst of active work, most of them busily engaged in family practice, including the surgeons to the infirmary, undertook the various lectureships, and so provided the teaching. It followed, therefore, as a result that all, or nearly all, the students were resident in Leeds, and most of them lived in the houses of medical practitioners. A further consequence was that it was possible for Mr. Sam Smith, surgeon to the infirmary, lecturer on midwifery, to deliver his course of lectures at 7 o'clock in the morning during the summer session.

The early work spread to the infirmary and enabled Mr. Wheelhouse and myself to pay our bi-weekly clinical visits to the wards at 8 o'clock in the morning, and allowed me to make that same hour the commencement of my operations at the infirmary and in private. As a further instance of the energy of the makers of the school at that period I may relate that in preparation for the meeting of the British Association in 1858 (not the B.M.A.), in order to put the museum into presentable order for the visits of scientific men, several of us—Nicholson Price, Scattergood, Wheelhouse, and myself—met twice a week from 7 to 9, revising the museum, looking over the specimens, and where necessary remounting the wet preparations. The 8 A.M. ward visits were continued by Mr. Wheelhouse and myself until our retirement as consulting surgeons in 1884.

A Quotation from an Address in 1903.

I will now quote from my address to you in 1903.

"There is one question on which I feel strongly and about which I venture to say a few words rather in the way of caution than of actual guidance. We have recently been told by a leading professor of physiology, whose opinion cannot but carry weight with us all, 'that surgery and medicine cannot be studied or understood without a previous knowledge of anatomy and physiology, and that some of his fellow-students early discovered that the time spent in the wards during these first years was wasted, and who soon discontinued the attendance until the subjects which were necessary for obtaining any benefit from it were finished with.' Perhaps they were right in the circumstances under which such attendance took place. Yet there is another side to this question, and I have always leaned to the other side, and have regretted the divorce of the early years of anatomy and physiology from any association with the human being and illness, for which all this scientific study is a preparation."

Here let me speak of the system I carried out in my ward teaching, which ended when in 1884 I became consulting surgeon at the end of my 20 years as full surgeon—35 years ago. It fell to me as junior on the surgical staff to enter names of students for attendance on the surgical practice of the infirmary. In accordance with my strong views, I encouraged the new men to commence attendance on the surgical practice of the hospital as soon as they entered for anatomy and physiology. The students attending the surgical side were divided into four classes, one class being assigned to each of the four surgeons for attendance on the ward visits of that surgeon for three months. At the end of this time they passed on to one of the others. In making out the lists I used to assign the first year's men to my list. On meeting this class, including the newcomers, at the opening of the session, I used to say to them: "Some people hold the view and will tell you that to go round the wards and see patients when you have not learned your anatomy and physiology is waste of time. My answer would be:—

'If you have used your time aright, listening intelligently to every question put by the surgeon to patient, to dresser, to nurse, or to house surgeon, just as if they were addressed to yourself, making a mental note of what passes; if you have used the splendid opportunity vouchsafed to you as a hospital pupil, and can at the end of this first three months judge by the look whether a patient is "better or worse," you will have made a good start in clinical study, and will have acquired a habit which will stand you in good stead in your future career.'"

Anæsthetics.

Now a word about anæsthetics. We will begin with *laughing-gas—nitrous oxide*. This was at first used as a chemical—and comical—toy. Mr. Wheelhouse used to tell of its amusing effects when he and his fellow-students at the Medical School tried it upon themselves and each other.

Next came *ether* from the United States, introduced by a dentist named Morton. I remember, somewhere in the very early "fifties," going with my father to see the administration of ether, by means of a cumbrous machine at the infirmary, as an anæsthetic for an operation. I have no recollection either of the apparatus used or of any operation.

About this time *chloroform* was discovered as an anæsthetic by Sir James Simpson and rapidly made its way to general use, though accepted with much apprehension. As time went on and the use of chloroform became general the frequency of deaths, and especially when it was used for slight operations—extraction of teeth, reduction of dislocations, and examinations otherwise painful—was creating serious alarm.

Then came an *Epoch in Anæsthetics*. At the International Ophthalmic Congress in London in July, 1876, Dr. Joy Jeffries, of Philadelphia, made a most urgent appeal to British surgeons to substitute for chloroform ether, which American surgeons and dentists had found to be almost free from danger—at any rate much less dangerous than chloroform. He gave ether on the open towel in large quantities. Here in Leeds we at once promptly responded. We began in the American way—first with the towel, then with the grid (brought to us from America by the infirmary chaplain, now Canon Spencer Gough, of Barningham)—struggling with difficulties, as a duty imposed upon us until at last relief came from Ormsby and Clover in their invaluable "inhalers," and ether asserted its superiority, a superiority which is now being recognised all over. I have written and preached and taught the greater safety of ether, and I have lived to see it paramount as the reigning anæsthetic.

Let me now speak of

Instruments of Precision and their Introduction into Practice.

Here I would give precedence to those used for *anæsthetics*. They are one of the earliest, the most universally employed, and the most effective aids to surgery, and in fact to medicine, which includes surgery, of any instrument ever devised.

When I became a student at King's College in October, 1852, Dr. Snow was working out the science of chloroform administration, and he had invented, I believe, the first mechanism for its administration, "Snow's Inhaler." At that time the only instrument of precision in general use, even then struggling to assert itself, was the *stethoscope*. Next came the *ophthalmoscope*. In my third summer session, May, 1855, at the height of the Crimean war, I became clinical assistant to Sir William Bowman at Moorfields, *vice* Hulke, who had gone out with the team of the picked young surgeons of London to work in the military hospitals of the Crimea. At that time the ophthalmoscope was being introduced to the staff and pupils at Moorfields by Dr. Bader, a refugee—Polish, I think. The invention of the instrument was by a German, and the Germans were ahead of England in its use and had already published an illustrated work by Jaeger, of Vienna.

But the ophthalmoscope was destined to have a wider field. It occurred to a young physician of Leeds, Clifford Allbutt, that it must come into use by the physician. He took every opportunity of mastering its use, including the field offered by the West Riding Asylum, thanks to the collaboration of Crichton Browne. Allbutt finally brought the matter before the profession by publishing a work "On the Ophthalmoscope in Medicine." (Macmillan, 1871.)

Clinical thermometry.—After a while the clinical thermometer comes on the scene—two long thermometers in a "*sesquipedalian*" box, about 12 inches long, which the poor doctor had to carry about under his arm. Clifford Allbutt again came to the rescue. Realising the enormous

possibilities of the instrument, and the necessity of easy portability, he devised, with the aid of Mr. Reynolds, of Harvey and Reynolds of Leeds, the short thermometer that could be carried in the waistcoat pocket, and he got a scientific friend to invent an index that would register the temperature. Allbutt also contributed to spread the use of the instrument by using freely as a handbook and for quotation "Clinical Thermometry," by Wunderlich.

Hypermetropia and astigmatism.—Then followed closely the discovery, aided by the ophthalmoscope, of optical defects that could be corrected by carefully selected lenses, hypermetropia, and astigmatism, worked out by Donders, of Utrecht, the great Dutch scientist, whose work on optical corrections was published in translation by the Sydenham Society and so brought before English-speaking ophthalmologists.

Laryngoscope.—Whilst the ophthalmoscope and thermometer were "making good" in England there arose another instrument of investigation, the laryngoscope. This came before the profession in another volume of the Sydenham Society—a translation of Czermach's work. Our early work was difficult, as we had no electric light, no local anæsthetics, no specially designed instruments. Of early successes two were very encouraging: one a sixpence lying flat in the larynx; the other a flat piece of bone lying vertically. The removal of these was at that time a veritable triumph.

Endoscope.—Following the laryngoscope came the endoscope, invented by M. Dieulafoy and introduced into Britain by Dr. Cruise, of Dublin. Dr. Cruise had improved the lamp, but its use was cumbrous and difficult. I had one conspicuous success. A patient who was being treated for stricture consulted Dr. Allbutt. He suspected stone, and sent him on to me. Having sounded and felt a calculus, I examined with the endoscope and saw several calculi. Ten were removed with a vesical pump. The man was cured. This endoscope did not make much progress. The invention in due time of an electric illuminator made all the difference, and now it is a recognised part of the conditions of surgery.

Hypodermic syringe.—I now come to the last of my special selection of instruments of precision, the hypodermic syringe, in reference to which this portion of my paper shall conclude with a quotation from the introductory address in 1867. I had then been for three years surgeon to the infirmary, working with my colleagues in the old infirmary under what would nowadays be looked upon as insuperable disadvantages.

"The increasing confidence in the physical modes of exploring the human body renders us less satisfied to remain in doubt when we can obtain certainty. We are approaching the time when we shall shrink from treating loss of voice without using the laryngoscope, or disease of the brain without exploring the optic nerve with the ophthalmoscope, or disease of the bladder without the aid of the sound or the endoscope. Thus prepared to demand exactness in observation, there has been granted to us one of those discoveries which, like chloroform, mark an era in our history—*hypodermic injection*. Valuable though this mode of treatment may be in its command over pain, it is still more important to the advance of science in the field of inquiry it has opened out, not only for testing the value of medicines, but also for searching into the nature of morbid processes themselves. When we see a neuralgia of long standing cured by one injection of morphia; when we see the same remedy *visibly* restoring to health congested vessels of the conjunctiva; reducing unnatural heat, not of the whole body, but of a suffering portion of it; lessening the swelling of an inflamed joint; arresting vomiting depending upon a lacerated brain, or upon peritonitis or suppressed menstruation—'I speak of the things that I do know'—we must feel that we have much to revise and much to learn as to the intimate nature of morbid processes by the light of our new power."

This was said 53 years ago.

Leeds University Address, 1888.

My next Introductory Address was given at the Leeds University 21 years later, in 1888. I had then been for four years consulting surgeon, with the right to use six beds for cases of my selection. The address was delivered at two weeks' notice to fill the gap made when Lord Lister was suddenly unable to fulfil his undertaking, and so it was given under disadvantages. Speaking of the elaborate arrangements for turning out an efficient practitioner I urged that—

"There was a part, and that no small one, in the training of a skilful practitioner which neither curriculum, nor lectures, nor examinations could secure. That part might be called self-education—the earnest seeking after every opportunity of seeing, of observing, and of doing; the training of their eye not only to see disease, but to observe its effect upon the countenance, the manner, the character of the patient, and, beyond the patient himself, the effect upon others—parents, children, friends, dependants—so that their minds might grasp the whole situation, and enable them to discharge in the fullest sense their duties as a medical adviser; the determination to use every opportunity of watching illness, of discharging small duties about the sick, of training the hands and touch and mind to handle gently, and, when obliged to give pain, to give as little pain as possible. And not least of the faculties of immense importance to a medical man was tact. That was partly the result of natural qualities, partly the result of training of the observation. Tact implied the power of observing and estimating the effect of their own manner and words upon others, combined with judgment to perceive what was the best thing to do, with the right feeling to enable them to act unselfishly in the interest of another."

King's College Address, 1908.

The third address, 20 years later, was delivered at King's College, London, where 54 years before I had entered as medical student, and had listened to the opening address. This address was essentially a "retrospect," a record of what existed when I was a student. But in referring to the advance of surgery I quoted from the records of operations at the Leeds Infirmary, with which, of course, I was familiar. From this summary I take two or three examples of steadily diminishing fatality.

The comparisons are taken in half decades, beginning in 1861 and ending 1905.

Ovariotomy.—In the 20 years 1860–80, out of 86 cases 1 in 3 proved fatal; in the 5 years 1901–05, out of 105 cases 1 in 21 proved fatal.

Radical cure of hernia.—In the 5 years 1880–85 the fatality was 1 in 11; in the 5 years 1885–90, out of 790 cases the fatality was 1 in 197.

The "Family Doctor."

In conclusion, let me say a few words as to the "family doctor." I will not call him a general practitioner, a term which implies the technical side of our profession. A family doctor who is all this—a competent practitioner of medicine—but, in addition, may be all that is implied in the words of a colleague at a recent medical dinner: "The practice of medicine is a personal, individual, intimate thing." Knowledge of this can only be acquired by contact with human beings in sickness and health, in poverty and well-being. Such a man should enter a house as a longed-for friend and a kindly and sympathetic adviser. Many such have I known and treasured as personal friends—and not least—among the noble corps of country doctors.

COLONIAL HEALTH REPORTS.

Bahamas.—Mr. F. C. Wells Durrant, acting Colonial Secretary, in his report for 1918–19, estimates the population at 60,082. The birth-rate was 34·3 and the death-rate 15·8 per 1000. Notwithstanding an epidemic of chicken-pox, from which very few fatalities resulted, the public health of the colony was, on the whole, good. There were a few cases of typhoid fever. Owing to a vigorous and stringent quarantine against incoming vessels, the colony was fortunately spared the ravages of Spanish influenza. Dr. A. H. B. Pearce assumed the duties of chief medical officer in March, 1919, in succession to Dr. J. Baird Albury, who had been acting on half salary for a considerable time. There were 765 admissions to the General Hospital (which comprises, besides the hospital proper, the Victoria Jubilee Infirmary, the lunatic asylum, and leper wards), making a total under treatment during the year of 900, of whom 315 were discharged recovered, whilst 250 were relieved and 131 died.

Gambia.—A report prepared by Mr. B. A. Finn, acting Assistant Colonial Secretary, reporting on the Blue-book for 1918, states that in 1911 the population of Bathurst was given as 7700 and that of the Protectorate as 138,401. It is probable that the population of Bathurst has increased but little since that date. On the other hand, there is good reason to believe that the population of the Protectorate is at least 30 per cent. greater. No accurate information is obtainable with regard to births and deaths in the Protectorate. The total number of Europeans resident was 122, of whom 112 were males and 10 females. There were 6 deaths amongst all these, from pneumonia and influenza, and no births. Amongst the native population of Bathurst the birth-rate was 34·1 and the death-rate 71·4 per 1000. There were over 300 deaths in Bathurst and 7800 in the Protectorate from the influenza epidemic which swept over the whole coast in the latter months of the year. Infantile mortality was at even a higher figure than usual. Out of a total of 263 births in Bathurst there were 50 stillbirths and 138 deaths of infants of less than 1 year of age; there were also 89 deaths of children over 1 and under 5 years of age. Malarial fever was the most prevalent disease, and pneumonia was more prevalent than usual, but there was no case of yellow fever, small-pox, or plague, and only 1 case of typhoid fever. The total rainfall for 1918 was 54·03 in., being greatly in excess of the average for the past ten years, which was 33·45 in. The highest recorded temperature was 101° F. (May 20th) and the lowest 48° (March 16th). The highest mean temperature in any month was 93° and the lowest 55·1°.

Gold Coast.—Captain C. E. Cookson, Assistant Colonial Secretary, is responsible for the report on the Blue-book for 1918, which gives the total population of the Gold Coast and its dependencies as 1,503,386. The number of Europeans resident in the colony during 1918 was 1823, comprising 515 officials, 681 employees of trading firms, 578 employees of

mining companies, and 49 missionaries. The death-rate amongst Europeans in the colony was 30·7 per 1000, as compared with 12·43 in 1917; the invaliding rates per 1000 for the same periods were 55·4 and 52·49 respectively. Of the 9 deaths which occurred amongst European officials in the colony and its dependencies 2 were due to blackwater fever and 4 to influenza. The death-rate of European officials fell from 15 per 1000 in 1917 to 11·6 per 1000 in 1918, and but for the deaths from influenza would have fallen to 3·8 per 1000. Of the 50 deaths of European non-officials 4 were due to blackwater fever, 25 to influenza, and 1 to yellow fever. No means exist whereby accurate statistics relating to the health of natives can be obtained. Treatment was given in 3181 cases of malaria, 416 of dysentery, 356 of pneumonia, and 239 of tuberculosis. In all 58,666 cases of disease were treated during the year, and of these 524 proved fatal. In September, 1918, an outbreak of influenza occurred on the coast line and spread rapidly through the colony and its dependencies. Only a very rough estimate can be made of the number of deaths caused by the pandemic, but it must have been very great. In the 7756 cases treated in the hospitals there were 204 deaths, giving a case mortality of 2·6 per cent. Assuming three-fourths of the population to have been attacked and the case mortality-rate the same the total number of deaths would be 30,000. The outbreak of small-pox that occurred in the Northern Territories in 1917 continued in 1918, when 88 cases were reported with 24 deaths. Ten cases of sleeping sickness were treated during the year. Of 17 cases of blackwater fever treated 4 proved fatal, and of 5 cases of yellow fever all resulted in death. The climate, though hot and damp, is cooler than that of most tropical countries situated in the same latitude. It is not in itself unhealthy, but an evil reputation has been earned for it in the past by the prevalence of mosquito-borne diseases, against which all possible precautions have constantly to be taken. The Gold Coast is peculiarly free from many of the discomforts associated with tropical countries; hot nights and intense heat by day are the exception rather than the rule, while insects are comparatively unobtrusive. The efforts of the sanitary and medical authorities in promoting hygiene and treatment of disease continue to exercise a beneficial effect on the general health of Europeans.

POISONOUS SHEEP-DIPS.

A NUMBER of deaths have occurred among sheep as a result of the use of poisonous dips during the present dipping season. There has always been a certain mortality with the use of arsenical dips, but the cheapness of arsenic as a drug, and the fact that it and its preparations have been used both internally and externally for skin complaints in animals for many years, perhaps account for the vogue it enjoys and the reluctance with which its use is relinquished. The advances in the science of therapeutics are but slowly recognised by the wholesale makers of proprietary remedies like sheep-dips, and really some legal measures and regulations want bringing forward to do away with the dangerous treatment and wholesale and indiscriminate drugging of animals and the subjecting of them to the action of remedies of out-of-date, crude, and mediæval form. In the case of sheep-dips lime and sulphur, cresol, lysol, and bacillol are all as effective as arsenical preparations, and much safer.

A GERMAN SURGICAL DIRECTORY.

WE have received from the publishing firm of Johann Ambrosius Barth in Leipzig an octavo volume of 288 pages, entitled "Deutscher Chirurgen-Kalender," being a directory of German surgeons and orthopædists, containing short biographical and bibliographical details. The directory has arisen, it is stated, from the need felt for a handy book of reference giving the present and past professional and literary activities of surgeons from which to draw correct conclusions and avoid confusion of names. Curiosity in regard to the career of this or that colleague after five years of war is intended to be satisfied. Names are included from German-speaking Austria and Switzerland, and from the Scandinavian countries. The omission of many well-known names is explained by the uncertain political conditions. The directory is an entirely new compilation, based upon the answers to a circular sent out. The editors are Professor August Borchard, one of the editors of the recent German War Surgery, and Dr. W. v. Brunn, privat-docent for the history of medicine in Rostock. The price is M.36.

LEFT-HANDEDNESS AND MIRRORED WRITING.

IN this reprint of a paper from *School Hygiene* Dr. James Kerr deals with a bypath which borders on medical fields. Dr. Kerr attempts to show that left-handedness presents two varieties, what he calls pure left handedness associated with right brain development and normal mentality, and the variety whose fingers are all thumbs, denoting want of cerebral specialisation in dextrality. He thinks that the supposed association of stammering with correction of left-handedness is unproved and is due to mis-read statistics, also that the idea of ambidextral culture developing fresh centres on the right side of the brain is physiologically unsound. The subjects of dextrality and mirrored work are very thoroughly discussed, especially from the standpoint of the school doctor. Dr. Kerr is a recognised authority on such questions and the paper is a valuable addition to the literature of the subject.

R. W. P.—Any opinion would be useless unless based on a careful local examination.

Medical Diary.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

LONDON HOSPITAL MEDICAL COLLEGE.

MEDICAL UNIT, in the Clinical Theatre of the London Hospital, E.

A Course of Twelve Lectures on Neurology, open to Students and Graduates of the London Hospital and other Schools—

TUESDAY, August 17th.—2 P.M., Lecture XI.:—Dr. Riddoch: The General Treatment of Disorders of the Nervous System.

WEDNESDAY.—2 P.M., Lecture XII.:—Dr. Thompson: Treatment of Paraplegia.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, August 16th.—12.15 P.M., Dr. Burnford: Pathological Demonstration. 5 P.M., Mr. MacDonald: Hæmaturia.

TUESDAY.—10.30 A.M., Surgical Registrar: Demonstration of Cases. (Surgical Wards.) 2 P.M., Dr. Burnford: Demonstration of Medical Cases. (Medical Wards.)

WEDNESDAY.—11.30 A.M., Mr. MacDonald: Demonstration of Cystoscopy. 4.30 P.M., Dr. Owen: Demonstration of Medical Cases. (Lecture Room.)

THURSDAY.—10.30 A.M., Dr. Simson: Gynæcological Demonstration. 4.30 P.M., Mr. B. Harman: Purulent Conjunctivitis.

FRIDAY.—12.15 P.M., Dr. Burnford: Applied Pathology.

SATURDAY.—12 noon, Mr. Sinclair: Surgical Diseases of the Abdomen.

Daily:—10 A.M., Ward Visits. 2 P.M., In-patient, Out-patient Clinics and Operations.

MALE LOCK HOSPITAL, Dean-street, W.

MONDAY, August 16th, WEDNESDAY, AND FRIDAY.—5 P.M., Dr. C. Russ: Demonstration of the Treatment of Gonorrhœa by Electrolysis.

CANCER HOSPITAL, Fulham-road, S.W.

Clinical Lectures on the Diagnosis and Treatment of Cancer.

TUESDAY, August 17th.—4.30 P.M., Sir Thomas Horder: The Value of Combined Methods of Treatment in Inoperable Cancer.

Communications, Letters, &c., to the Editor have been received from—

A.—Dr. A. C. Alport, Moniaive; Dr. B. P. Allinson, Lond.; Mr. R. J. Albery, Lond.

B.—Messrs. John Bale, Sons, and Danielsson, Lond.; Sir J. R. Bradford, Lond.; Dr. W. C. Bosanquet, Lond.; Mr. S. A. Best, Lond.; Dr. H. P. D. Benson, Finglas; Mr. J. Burns, Edinburgh; Col. R. J. Blackham, Bearsted; Mr. T. W. Boughton-Leigh, Arundel.

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D.—Mr. H. Dickinson, Lond.; Dr. J. N. D'Esterre, Lond.; Mr. T. N. Deb, Cox's Bazar, Bengal.

G.—Dr. A. Goodwin, Lond.; Dr. T. W. Griffith, Leeds.

H.—Mr. P. B. Hoeber, New York; Dr. G. M. Holmes, Lond.; Mr. F. Hubbard, Lond.

J.—Dr. H. W. Jones, Liverpool; *Journal of the American Medical Association*, Chicago; Mr. C. L. S. James, Lond.

K.—Mr. G. L. Keynes, Lond.

L.—Dr. T. Lewis, Lond.; Dr. A. Loxton, Birmingham; Mr. E. C. Lewis, Lond.; London Royal Free Hospital School of Medicine for Women.

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P.—Dr. A. L. Punch, Lond.; People's League of Health, Lond.

R.—Dr. F. Roeder, Vienna; Dr. J. A. Ryle, Lond.; Research Defence Society, Lond.; Mr. I. G. Roy, Greenock; Royal College of Physicians, Edinburgh.

S.—Prof. W. Stirling, Manchester; Save the Children Fund, Lond.; Dr. W. G. Spencer, Lond.; Canon J. Shearme, Ryde; School of Physic in Ireland, Dublin, Registrar of; H.M. Stationery Office, Lond.

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Communications relating to the editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.